

Attachment 2

Revised Practicable Alternatives Analysis Report

Southwestern Horizontal Expansion

**Practicable Alternatives Analysis
Veolia ES Emerald Park Landfill, LLC, Muskego, Wisconsin
Addendum No. 1**

WDNR License FID No. 268244130

November 2009

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*Prepared For
Veolia ES Emerald Park Landfill, LLC*



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Executive Summary

Veolia ES Emerald Park Landfill, LLC (VEPL), is proposing a horizontal expansion at the existing Veolia Emerald Park Landfill in Muskego, Wisconsin. VEPL is proposing to expand this facility for the express purpose of

1. providing uninterrupted, competitive, efficient, cost-effective, environmentally sound waste disposal, recycling, and composting services to Waukesha County and the surrounding nine counties in the VEPL service area; and
2. satisfying the public's long-term need for waste disposal capacity within the service area.

Because the project would result in wetland impacts, it is necessary, and appropriate, to evaluate the proposed project and the associated wetland impacts in accordance with the water quality standards for wetlands set forth in NR 103 and the associated Wisconsin Department of Natural Resources (WDNR) guidance document.

NR 103 Review

The purpose of Chapter NR 103 is, as stated in NR 103.01(1), “... *to establish water quality standards for wetlands.*” To achieve its stated purpose, NR 103 provides water quality standards to serve as a basis for decisions in the regulatory permitting and planning of activities that impact water quality and that may impact wetlands. Furthermore, the water quality standards contained within NR 103 “... *are intended to protect public rights and interests, public health and welfare, and the present and prospective uses of all waters of the state*” [NR 103.01(2)]. Toward this end, NR 103 presents a formal process that evaluates proposed activities, such as landfill expansions, so as to “*protect the general public interest*” [NR 103.01(2)].

Practicable Alternatives Analysis

Because the Expansion would impact more than 0.1 acre of wetland, and because the Expansion would not be water or wetland dependent, NR 103 requires an analysis of the practicable project alternatives. Recognizing that landfills are not readily relocated, and that the general public interest is not served by facilitating the relocation of existing, compliant landfills to new, undeveloped “greenfield” locations, WDNR guidance allows for the alternatives review to be limited to areas adjacent to, or on, the same property as the existing landfill (WDNR Guidance, February 2007). NR 103.07(2) defines practicable alternatives as “... *available and capable of being implemented after taking into consideration cost, available technology, and logistics in light of the overall project purpose.*”

In an effort to develop a comprehensive group of potential expansion alternatives that achieve the project purpose, VEPL, through an iterative process with WDNR staff, developed five expansion design alternatives for evaluation. In order to make comparisons of alternatives, each alternative is assumed to have a 15-year site life (with the same capacity as the Preferred Alternative 5 – 16,316,300 cy). Where an alternative capacity is less than 15 years, a greenfield site would be built to provide the balance of the disposal capacity for a 15-year site. These alternatives range from a “no action” alternative, to designs that would allow for 15 years of additional site life. Each alternative begins in year 2014. A summary of the alternatives follows:

- **Alternative 1 – No Action or No Expansion.** This alternative would not allow VEPL an opportunity to expand, thereby resulting in the closing of the facility within approximately 5 years (2014) when the current permitted design is filled to capacity. A greenfield would then have to be opened to add a total of 15 years of capacity to the area, resulting in a net negative impact to the local economy estimated at \$475 million when compared to Alternative 5. A local economic impact analysis for this alternative is summarized in Table 2.
- **Alternative 2 – No Direct Impact to Agricultural Ditches and Setback From 8-Mile Road (see Figure 3).** This alternative would allow for approximately 7 years of additional site life with only indirect impacts on agricultural ditches located at the northern side of the Proposed Expansion and the ditch perpendicular to 8-Mile Road. A prorated greenfield would then add 8 years of site life for a total of 15 years of site life, and resulting in a net negative impact to the local economy estimated at \$241 million when compared to Alternative 5. A local economic impact analysis for this alternative is summarized in Table 2.
- **Alternative 3 – No Impacts to Wetlands (see Figure 4).** This alternative would allow for approximately 4 years of additional site life with no impacts to on-site wetlands. A prorated greenfield would then add 11 years of site life for a total of 15 years of site life, resulting in a net negative impact to the local economy estimated at \$347 million when compared to Alternative 5. A local economic impact analysis for this alternative is summarized in Table 2.
- **Alternative 4 – Avoid Wetland No. 12 (see Figure 5).** This alternative is similar to Alternative No. 5 but would avoid direct impact to Wetland No. 12 and would provide approximately 14 years of additional site life. A prorated greenfield would then add 1 year of site life for a total of 15 years of site life, resulting in a net negative impact to the local economy estimated at \$43 million when compared to Alternative 5. A local economic impact analysis for this alternative is summarized in Table 2.
- **Alternative 5 – Preferred Alternative (see Figure 6).** This alternative would allow for approximately 15 years of additional site life.

Each of these design alternatives were examined on the basis of expansion site life, acreage requiring disturbance, agricultural acreage impacted, local zoning and public acceptance

(i.e., land use compatibility), indirect and direct impacts to wetlands, the cost of landfill construction and development, technical feasibility, logistics, air quality impacts to the environment, and the direct and indirect economic impact on Waukesha County and the surrounding service area. The detailed development cost for each alternative is presented in Attachment 1.

After performing a practicability analysis of the expansion alternatives, the following conclusions are immediately apparent:

- **Alternative 1 – No Action or No Expansion.** This alternative is not a practicable alternative as defined in NR 103.07(2), in that it does not allow for achieving the overall project purpose. The existing landfill would close in 2014 when the current permitted design is filled to capacity, thereby ensuring a future regional waste disposal shortage and potentially creating a near monopoly of the 10-county service area market by a single privately-owned waste management company. For comparison, it is assumed that a 15-year, 16,000,000-cubic yard (yd³) greenfield site 50 miles away would be needed. This alternative would cost approximately \$ 5.35/cy³ of airspace (see Attachment 1 – Cost Estimates and Table 6). This alternative would have the most negative environmental (air quality) and economic impact to the area of the five alternatives (see Table 4).
- **Alternative 2 – No Direct Impact to Agricultural Ditches and Setback From 8-Mile Road.** This alternative would result in an expansion with a site life of approximately 7 years (8,144,700 yd³ of additional airspace) and would result in the direct filling of 0.7-acre of wetlands. This alternative would cost approximately \$ 4.79/yd³ of airspace to expand the existing landfill and to develop a greenfield site with 8 years of site life to create 15 years of waste disposal capacity for the service area (see Attachment 1 – Cost Estimates and Table 6). The greenfield costs are prorated for 8 years. This alternative would have the third most negative environmental (air quality) and economic impact to the area of the five alternatives (see Table 4).
- **Alternative 3 – No Impacts to Wetlands.** This alternative would result in an expansion with a site life of approximately 4 years (4,387,800 yd³), and would cost approximately \$ 5.27/yd³ of airspace to expand the existing landfill and to develop a greenfield site with 11 years of site life to create 15 years of waste disposal capacity for the service area (see Attachment 1 –Cost Estimates and Table 6). The greenfield costs are prorated for 11 years. This alternative would have the fourth most negative environmental (air quality) and economic impact to the area of the five alternatives (see Table 4).
- **Alternative 4 – Avoid Wetland No. 12.** This alternative would result in an expansion with a site life of approximately 14 years (14,726,800), would result in the direct filling of 11.03 acres of wetland, and would cost approximately \$ 3.68/yd³ of airspace to expand the existing landfill and to develop a greenfield site with 1 year of site life to create 15 years of waste disposal capacity for the service area (see Attachment 1 - Cost Estimates and Table 6).

The greenfield costs are prorated for 1 year. This alternative would have the second least impact to the environment (air quality) and the economy of the five alternatives (see Table 4).

- **Alternative 5 – Preferred Alternative.** This alternative would result in an expansion with a site life of approximately 15 years (16,316,300 yd³), would result in the direct filling of 14.3 acres of wetlands, and would cost approximately \$ 3.30/yd³ of airspace to develop (see Attachment 1 – Cost Estimates and Table 6). This alternative would have the least negative impact to the environment (air quality) and economy (see Table 4).

After a practicability analysis of the five expansion alternatives was conducted, in accordance with NR 103 and the associated WDNR guidance document, only two alternatives were deemed practicable: Alternatives 4 and 5 – with Alternative 5 as the Preferred Alternative. This conclusion is reached based on the following considerations:

- The Preferred Alternative would provide the most efficient, highest-value use of land resources, and would maximize the use of the existing landfill property. This alternative would have the lowest impacts to air quality (see Table 4). The existing property is zoned landfill and extractive operations, and has been used for waste disposal purposes since 1994.
- The Preferred Alternative would keep the landfill at a location that has been hosted by the local community.
- The Preferred Alternative would provide for long-term, cost-effective, and competitive recycling, composting, and responsible solid waste disposal services for the 10-county service area.
- The Preferred Alternative would be the most financially and administratively efficient alternative for the local community, the WDNR, and VEPL. An extensive, time-intensive permitting process would only be conducted once versus permitting twice, once for the Expansion and once for a greenfield site, and would provide 15 years of additional site life.
- The Preferred Alternative would be technically and logistically practical to permit, would operate as a compliant state-of-the-art facility, and would extend the required 40-year post-closure care period further into the future.
- The Preferred Alternative, when considering the economic impacts to the local community and service area, would have a positive economic impact on the local economy of over **\$ 320 million, which is substantially greater than three of the other four alternatives.**
- If a landfill would need to be located outside the area that presently benefits from the Host Fees and associated economic impacts, the local taxes would increase for all property owners, along with the cost for waste disposal for each household and business.

- All other alternatives increase the area of land disturbed, haul distance, fuel consumption, pollution (greenhouse gasses), costs for services, wear and tear on highways, and revenues lost to local municipalities.
- To achieve 15 years of site life, the Preferred Alternative 5 would require 71 acres by taking advantage of the volume gained by overlaying onto the existing landfill. With a greenfield site, approximately 234 acres would be needed for support facilities and to achieve the same volume of disposal capacity, thereby using up more land, reducing farmland, increasing cost per cubic yard of waste, and increasing the potential for disturbing even more wetland area, which would be contradictory to the goal of NR 103.

Section 1

Project Scope and Objectives

1.1 Introduction

Veolia ES Emerald Park Landfill, LLC (VEPL), is proposing to expand the existing solid waste facility to the southwest. A detailed description of this project and associated drawings are attached. VEPL is proposing to expand this facility for the express purpose of

- providing uninterrupted, competitive, efficient, cost-effective, environmentally sound waste disposal, recycling, and composting services to Waukesha County and the surrounding 9-county area; and
- satisfying the public's long-term need for disposal capacity within the service area.

Because the project would result in wetland impacts, it is necessary, and appropriate, to evaluate the proposed project and the associated wetland impacts in accordance with the water quality standards for wetlands set forth in the Wisconsin Administrative Code NR 103 and the associated WDNR guidance document (WDNR, 2007).

To begin the expansion process, an Initial Site Inspection (ISI) of the Expansion area was requested by VEPL. The ISI was subsequently performed by representatives of the WDNR; VEPL; and RMT, Inc. (RMT), on November 22, 2005. During this inspection, wetlands observed in the vicinity of the Expansion were reviewed. Pertinent wetlands were delineated by Natural Resources Consulting, Inc. (NRC), and are shown on Figure 1 as W4, W6, W6a, W7, W9, W10, W11, and W12; ditches D2 and D3; and surface water body P6. The Wetland Functional Value Assessments are found in Attachment 2.

An Initial Site Report (ISR) for the Expansion was submitted to the WDNR on December 22, 2005 (RMT, 2005). Developed in accordance with NR 509, this ISR addressed the WDNR's comments presented in the ISI response letter dated December 13, 2005.

1.2 Purpose

The purpose of this document is to provide a formal Practicable Alternatives Analysis (PAA) that explores the background of the Expansion, presents a range of project alternatives to be considered, provides a critical evaluation of the project alternatives, and provides a conclusion as to the practicability of the alternatives analyzed. This PAA was developed in accordance with NR 103 and the WDNR guidance document.

1.3 NR 103 Review

The purpose of Chapter NR 103 is, as stated in NR 103.01(1), “... to establish water quality standards for wetlands.” To achieve its stated purpose, NR 103 provides water quality standards to serve as a basis for decisions in the regulatory permitting and planning of activities that impact water quality and wetlands. Furthermore, the water quality standards contained within NR 103 “... are intended to protect public rights and interests, public health and welfare, and the present and prospective uses of all waters of the state” [NR 103.01(2)]. Toward this end, NR 103 presents a formal process that evaluates proposed activities, such as landfill expansions, so as to “protect the general public interest” [NR 103.01(2)].

To begin the evaluation of the Expansion, a review of similar projects that have undergone the NR 103 process was completed. This review was undertaken in an effort to garner insight into, and an understanding of, how this process has been historically interpreted and applied in Wisconsin so as to achieve protection of water quality, public rights and interests, and public health and welfare. This review identified four recent landfill expansions and a significant number of Wisconsin Department of Transportation (WisDOT) projects for which wetland filling had been previously authorized. WisDOT projects are believed to be relevant. Like roads and highways, landfills provide a recognized and necessary public service. Furthermore, like roads, landfills have inherent, significant limitations in their siting processes—constraints to which other types of development are not subject. The Expansion should be reviewed considering previous actions. The following recent pertinent projects have undergone the NR 103 process:

- The WDNR approved of the direct filling of approximately 2.5 acres of wetlands of low functional value as part of the expansion of the Veolia Emerald Park Landfill. For this landfill development project, the WDNR concluded that “... the proposed landfill will not cause a significant adverse impact on wetlands, and will not result in significant adverse impacts to the functional values of the affected wetlands, significant adverse impacts to water quality, or other significant adverse environmental consequences.” The project-appropriate section from the report is provided in Attachment 3.
- The WDNR approved of the destruction of approximately 3.5 acres of low-quality wetlands as part of the expansion of the Waste Management Orchard Ridge Landfill. For this landfill expansion project, the WDNR concluded that “...the loss of the 3.5 acres of low quality, wetland would not have a significant impact on wetland and functional values, water quality or other significant environmental consequences.” The project-appropriate section from the report is provided in Attachment 4.
- The WDNR approved of the direct filling of approximately 26 acres of wetlands as part of the expansion of the Consolidated Papers paper mill sludge landfill. Wetland mitigation, under the U.S. Army Corps of Engineers’ (USACE’s) mitigation program, was proposed as a part of this project. For this landfill expansion project, the WDNR concluded that “...due

to the low functional value of the affected wetlands, and the regional abundance of these wetlands, the project will not result in either significant adverse impacts to water quality, or other significant adverse environmental impacts.” Project-related documentation and regulatory correspondence is provided in Attachment 5.

- The WDNR approved the direct filling of 9.078 acres of wetland at the Ashley Furniture Industries Plant 4 expansion site and converted 2.10 acres of wetland into a storm water treatment and conveyance system. In addition, 2.75 acres of wetland were converted for a railroad siding and modular container storage area, and 0.4 acre of wetland was converted into a storm water treatment and conveyance system for the siding facility. For this construction project, the WDNR concluded that “...*project will not result in considerable and important impacts on the quality of the human environment.*” The project-appropriate section from the report is provided in Attachment 6.
- The WDNR approved the direct filling of approximately 13.3 acres of wetlands of low-functional value as part of the expansion of the Veolia Glacier Ridge Landfill (Glacier Ridge). For this landfill development project, the WDNR agreed with Glacier Ridge “...*regarding a holistic project approach...expanding the existing Glacier Ridge Landfill to the south into an area that contains approximately thirteen acres of wetlands, subsequently expanding the Glacier Ridge Landfill to the area previously occupied by the LGRL, and restoring and enhancing approximately 245 acres of uplands and wetlands.*” The project-appropriate section from the report is provided in Attachment 7.

WisDOT projects periodically result in wetland impacts. For the period 1991 through 2001, the WisDOT undertook more than 1,200 different transportation projects that resulted in impacts to over 2,200 acres of Wisconsin wetlands. These wetland impacts were mitigated by the WisDOT’s use of wetland banks and wetland restoration projects. As a result, the impacted wetland acres have been replaced by more than 3,000 acres of restored (mitigation to wetland) or enhanced wetlands.

Mitigation – Mitigation projects usually require compensation at ratios of 1.5:1, though the rules allow for 1:1 compensation. Two-thirds of bank credit purchases are approved with a compensation ratio of 1:1. A total of 28 credits have been purchased from mitigation banks as a result of the State program between February 2002 and December 2006. If all project-specific mitigation sites (i.e., not bank sites) approved between 2002 and 2006 are successful, then it can be expected that a total of 49.7 acres of wetland will be restored (mitigated), and 4.6 acres of wetland will be created. By law, when an applicant does not have feasible opportunities for on-site restoration of wetlands (defined by rule as within ½ mile of the wetland loss), that applicant may opt to purchase credits from a pre-authorized bank. VEPL is in the process of developing a 78.25-acre high-quality wetland restoration project on its property (see Section 9 for additional information). This wetland mitigation project would provide the necessary compensation to offset all impacts associated with either the preferred alternative or Alternative No. 4.

Siting of a greenfield landfill is extremely difficult. In addition to the higher costs per cubic yard of disposal capacity, which would be passed onto state taxpayers, it would take twice as long to permit a greenfield site versus an existing site. The impact to adjacent property owners could more than double with the siting of a greenfield site versus the expansion of an existing site. Additionally, there would be significant lost revenue to the host communities if the existing site is not expanded to optimize disposal capacity

If the Preferred Alternative was not selected, there would also be an increased cost of fuel for the haul trucks to divert waste to either Glacier Ridge or Zion. Assuming that the garbage trucks average fuel economy of 2.8 mpg, an extra 50 gallons and 25 gallons would be consumed, respectively, for Glacier Ridge and Zion for the incremental increase in distance from EPI. The increase in fuel consumed means an increase in fuel costs, wear and tear on roads, and the overall carbon footprint, and the potential for an increase in traffic-related accidents and deaths (Table 7).

1.4 Practicable Alternatives Analysis

Because the Expansion would impact more than 0.1 acre of wetlands, and because the Expansion would not be water or wetland dependent, NR 103 requires an analysis of the practicable project alternatives. Recognizing that, by their nature, existing landfills are not readily relocated, and public interest is not served by facilitating the relocation of existing, compliant landfills to new, undeveloped “greenfield” locations, WDNR guidance allows for alternative reviews to “... be limited to areas adjacent to or on the same property ...” as the existing landfill (WDNR, 2007). NR 103.07(2) defines practicable alternatives as “... available and capable of being implemented after taking into consideration cost, available technology, and logistics in light of the overall project purpose.”

In an effort to develop a comprehensive group of potential expansion alternatives that would achieve the project purpose, RMT and VEPL developed the following five Expansion alternatives that warrant evaluation:

- Alternative 1 – No Action or No Expansion (requiring development of a greenfield site)
- Alternative 2 – No Direct Impact to Agricultural Ditches and Setback From 8-Mile Road
- Alternative 3 – No Impacts to Wetlands
- Alternative 4 – Avoid Wetland No. 12
- Alternative 5 – Preferred Alternative

Each of the design alternatives was examined on the basis of expansion site life, acreage requiring disturbance, agricultural acreage impacted, local zoning and public acceptance

(i.e., land use compatibility), indirect and direct impacts to wetlands, the cost of landfill construction and development, technical feasibility, logistics, impacts to the environment (air quality), and the direct and indirect economic impact on Waukesha County and the surrounding service area. Tables 1, 2, and 4 summarize the analysis of the various design alternatives utilizing these criteria.

To conduct an economic assessment of the various alternatives considered, an economic evaluation methodology was developed as a means for estimating, evaluating, and comparing the economics associated with each alternative. This methodology was developed to satisfy the requirements and criteria presented in NR 103.07(2) and the WDNR guidance document (WDNR, 2007). The WDNR guidance document states that “...*substantial differences in costs between two or more alternatives may make a given alternative not practicable...*” Recognizing that the economics of the construction and operation of a large conceptual long-term expansion design alternative are complex, a concerted effort was made to develop a methodology that was readily understandable, simplified, justifiable, and economically conservative. It was felt that such a methodology would facilitate a basic understanding of the economics associated with each alternative and would allow for comparison of the various design alternatives. The methodology developed utilizes two economic criteria to evaluate the different alternatives: (1) the cost to develop the alternative, and (2) the economic impact of the alternative on the local community and service area.

The development cost, as used in this analysis, is the estimated cost to permit the alternative, excavate soil, construct the liner and leachate collection systems, construct the landfill gas collection system, and construct the final cover system. Also taken into consideration are the costs of major landfill appurtenances that would be required to operate the alternative (e.g., leachate storage tanks, office, and maintenance shop). Not included is the cost of land, the cost of daily operations, insurance, taxes and fees, financial assurance, and 40 years of post-closure care. The detailed development cost estimate for each alternative is presented in Attachment 1.

To determine the economic impacts of the alternatives on the local community and service area, including municipalities, businesses, and residents within the affected areas, the following four economic impacts were evaluated:

1. Local purchasing of supplies and services by VEPL, and the payment of wages to VEPL employees who are local residents. The stimulating, potentially increasing effects of these monies on the local economy were conservatively not included in this analysis.
2. Host fees and in-kind services that have been historically provided under the local host agreement at the VEPL. The assumption is that any expansion alternative would include a local host agreement that is generally similar to the current agreement.

3. The need to redirect and transport waste (previously disposed at the VEPL) to other landfills serving the service area, after the VEPL closes. This influences transportation costs to a greenfield site (50 miles away) or to Glacier Ridge and Zion for Veolia.
4. Decreased competition in the service area. Closure of the VEPL would allow the service area market to potentially be monopolized by a single privately-owned waste management company (Figure 2). Based on historical competitive changes that have occurred within the Wisconsin marketplace, the closure of the VEPL will result in a direct increase in disposal pricing within, and adjacent to, the service area. The economic impact considered was conservatively limited to the service area.

To evaluate the economic impacts of the alternatives on the local community and service area, the time value of money and inflation were conservatively not included in the evaluation. Additionally, to provide a comparison of the various alternatives with their differing site lives, the alternatives had to be adjusted with a prorated greenfield site disposal capacity in order to assume a common site life and volume. Because one of the alternatives analyzed had an estimated 15-year site life and approximately 16 million yd³ of airspace, a hypothetical site life of 15 years and a capacity of 16 million yd³ were applied to each of the other alternatives. By normalizing the alternatives in this manner, an “apples to apples” comparison was achieved. The results of this portion of the economical analysis are presented in Table 2.

To evaluate the environmental impact of the alternatives, the pollution from greenhouse gases created by additional truck traffic created with a longer hauling distance to other Veolia sites or to a greenfield site were calculated. In addition, closing or reducing the Expansion capacity from proposed Alternative 4 or 5 could negatively impact the LFG-to-energy project currently being developed between VEPL and the Milwaukee Metropolitan Sewage District (MMSD). The project consists of utilizing landfill gas as an alternative fuel to natural gas, thereby offsetting the greenhouse gases created by the burning of natural gas (see Table 4). This would also insure the long term viability of the production of Milorganite at the facility. Milorganite is an organic nitrogen fertilizer produced by the Milwaukee Metropolitan Sewerage District. It consists of processed sludge from the Milwaukee Metropolitan Sewerage District Jones Island Wastewater Treatment Plant in Milwaukee, Wisconsin. The fertilizer is made of treated biosolids that have nutrients from the sewage stream along with added iron, used to strip phosphorus from the waste water flowing into Lake Michigan. This project has the potential to save ratepayers \$148 million dollars over the first 20 years of the service contract currently being negotiated between VEPL and MMSD.

Section 2

Alternative 1 – No Action or No Expansion

The first design alternative evaluated is Alternative 1 – No Action or No Expansion. This alternative would not allow the VEPL an opportunity to expand, thereby resulting in the closing of the facility within approximately 5 years, around the year 2014, when the currently permitted design is filled to capacity. Under this alternative, other existing landfills or a greenfield site would then be utilized in lieu of an expanded VEPL to provide uninterrupted waste disposal services to the service area.

2.1 Technical and Logistical Assessment

An analysis of the Expansion, in accordance with Wisconsin Statutes § 289.28, will be presented in the Needs Analysis section of the Feasibility Report submittal to the WDNR.

2.2 Environmental Assessment

Since this alternative calls for no action at the VEPL, it has no direct adverse effect on the environment in the vicinity of the VEPL. However, the consequences of no action at VEPL will ultimately be the expansion of another existing landfill or the construction of a new greenfield landfill within, or adjacent to, the VEPL service area. Such an expansion or greenfield development would most certainly have impacts on the environment. The greenfield landfill would result in 234 acres of farmland being removed from service. This would also result in an unknown acreage of wetlands being affected, which could very well be greater than the acreage of wetlands being directly and indirectly impacted by the preferred alternatives associated with this expansion. This would seem to be inconsistent with the intent and spirit of NR 103..

An analysis was performed to model greenhouse gas emissions associated with this alternative. Table 4 summarizes the greenhouse gas emission estimates. Specifically, if the site were not expanded and a new greenfield site was to be built approximately 50 miles away, an additional 100-mile round trip of waste trucking would be needed to get to a greenfield site. This results in approximately 5,724,374 tons of total CO₂-equivalent greenhouse gas emissions over the 15-year period.

The annual greenhouse gas emissions associated with this alternative are equivalent to the emissions associated with approximately 195,400 automobiles over the 15-year period.

Additionally, the MMSD is proposing to use landfill gas instead of natural gas. If the landfill gas were not available, natural gas would continue to be used and would result in approximately 2,190 tons of CO₂-equivalent greenhouse gas emissions over the 15-year period.

2.3 Economic Assessment

Alternative 1 would give the VEPL an estimated site life of approximately 7 years from 2007, with the remaining capacity of the existing landfill. The development of this alternative would result in the closure of the facility 15 years before closure would have occurred if a 15-year alternative (the Preferred Alternative) had been implemented. The estimated cost of a 16 million yd³ greenfield site is \$ 85.6 million. The development of Alternative 1 is estimated to be \$ 5.35/yd³ of developed airspace (see Attachment 1 – Cost Estimates and Table 6). The development and operation of Alternative 1 would have both direct and indirect adverse economic impacts on the local community and the 10-county service area (Table 2), as follows:

- Local purchasing of supplies and services by VEPL, and the payment of wages to VEPL employees who are local residents. The stimulating, potentially increasing effects of these monies on the local economy were conservatively not included in this analysis.
- Host fees and in-kind services that are to continue to be provided under the local host agreement at the VEPL. VEPL and the local host communities have already agreed to adopt the existing host agreement for this landfill expansion.
- The need to redirect and transport waste (previously disposed at the VEPL) to other landfills serving the service area, after the VEPL closes.
- Decreased competition in the service area. Closure of the VEPL would allow the service area market to potentially be monopolized by a single privately-owned waste management company (Figure 2). Based on historical competitive changes that have occurred within the Wisconsin marketplace, the closure of the VEPL would result in a direct increase in disposal costs within, and adjacent to, the service area. The economic impact considered was conservatively limited to the service area.

Local Economic Benefits From Services and Labor - This alternative would provide no economic benefit to the local community for the comparative 15-year period. As a result, no money would be returned to the local economy in the form of services and materials purchased, and wages paid by VEPL, resulting in no positive, stimulating, or increasing effects on the local economy. Alternative 1 not only would result in no economic benefit, but also would result in additional negative impacts because more fuel would be used to transport waste to a greenfield site. This would also increase traffic accidents, fuel costs, and wear and tear on local roads.

Local Economic Benefits From Host Fees and In-Kind Services - The VEPL would pay no host fees or provide no in-kind services for the local area in this Alternative. This would result in no economic stimulus to the local area (refer to Table 2).

Waste Transportation Costs - Because the VEPL would not provide waste disposal services, there would be an adverse impact relating to the cost of waste transportation within the 10-county service area over 15 years. An adverse economic impact to local municipalities, industries, and residents would occur because there would be a need to redirect and transport waste to more distant landfills, resulting in increased waste transportation costs due to an increase in fuel consumption, additional labor costs, and wear and tear on the trucks. The increased costs would be borne by the municipalities, businesses, and residents of the 10-county service area. This cost increase is estimated to be \$ 73 million (when normalized with a hypothetical 15-year life for comparison purposes). Refer to Table 2. Additional potential lost benefits include an increase in greenhouse gas emissions (Table 4), and an increase in the potential for traffic related deaths, using National Highway Traffic Safety Administration (NHTSA) statistics associated with the increased truck miles, as well as the increased wear and tear on the roads. Refer to Table 7.

Service Area Competition - With this alternative, the VEPL would not expand, thereby potentially allowing the service area to be monopolized by a single privately-owned waste management company (see Figure 2). Based on historical competitive changes within Wisconsin marketplaces, no expansion of VEPL would likely result in increased disposal pricing for the waste generated within the 10-county service area. This increased cost of disposal would be borne by the municipalities, businesses, and residents within the service area. This increased cost would be approximately \$ 82 million (when normalized with a hypothetical 15-year life for comparison purposes). Refer to Table 2.

2.4 Conclusion

In conclusion, Alternative 1 – No Action or No Expansion would be financially negative to the affected municipalities, and the public life. Since it would result in the long-term closure of the VEPL in Waukesha County, the development of this alternative would not allow for achieving the overall stated project purpose. The existing landfill will close in 2014 when the current permitted design is filled to capacity, ensuring a future regional disposal crisis, while potentially creating a near-monopoly of the 10-county service area by a single, privately-owned waste management company. It would also result in a loss of the money that has historically been returned to the local economy in the form of services and materials purchased, wages paid by VEPL, as well as host fees and in-kind services provided by Veolia under a local host agreement. When considering the economic impacts to the local community and service area,

Alternative 1 would have a substantial negative economic impact on the local economy. Normalizing this alternative with a hypothetical 15-year site life for comparison purposes, the net negative economic impact is estimated to be \$ 475 million considering services, materials, host fees, and in-kind services to the local economy as compared to the Preferred alternative. Refer to Table 2. **As a result, Alternative 1 is not a practicable alternative as defined in NR 103.07(2).**

Section 3

Alternative 2 –

No Direct Impact to Agricultural Ditches and Setback From 8-Mile Road

The second design alternative evaluated is Alternative 2 – No Direct Impact to Agricultural Ditches at the northern side of the proposed Expansion, and Setback from 8-Mile Road to avoid the drainage ditch at the southern side of the Expansion. This design alternative would consist of a downsized, reconfigured expansion southwest of the existing VEPL. Approximately 7 years of site life would be provided by this Expansion, plus a prorated greenfield landfill with an 8-year capacity for a total airspace of 16.3 million cubic yards for 15 years. The conceptual design for this alternative is presented on Figure 3.

3.1 Technical Assessment

This alternative would consist of the construction of a downsized landfill footprint located southwest of the existing VEPL. The conceptual design for this landfill consists of a 70.15-acre footprint that includes the expansion footprint and the area over the existing landfill that would contain approximately 8.1 million yd³ of airspace with an associated life of approximately 7 years. This alternative would call for the direct filling of W6, W6a, and W7. Approximately 0.56 acre of degraded wetlands of low-functional value would be filled. As a result, the footprint has an irregular shape. Because of the reduced footprint size and the irregular shape, a number of construction issues and inefficiencies would exist. Because of the reduced width and extent of the footprint, significant acreages would unnecessarily be affected while generating minimal airspace. This alternative would generate approximately 211,000 yd³ of airspace per acre of footprint or 137,000 yd³ of airspace per acre of affected land. For comparison purposes, the Preferred Alternative 5 would generate approximately 229,000 yd³ of airspace per acre of footprint or 183,000 yd³ of airspace per acre of affected land. In addition, a greenfield site would be needed to provide an additional 6 years of capacity to achieve 15 years of waste disposal service, requiring 234 acres (for a 15-year site, even if only an 8-year capacity is needed). The area would include agricultural land removed for the landfill and the infrastructure needed to support a landfill: roads, fencing, leachate tanks, piping, scale, offices, maintenance buildings, and LFG building/flare, etc. It is also conceivable that the siting of any greenfield site would directly or indirectly affect a greater amount of wetlands than any of the proposed alternatives or preferred option which would seem to be inconsistent with the intent and spirit of NR 103.

The property on which this alternative would be built is currently zoned M-3 Landfill (Figure 7).

3.2 Logistical Assessment

This alternative, with its narrow, irregular shape, would be difficult to construct and operate as a landfill. It would also be financially and administratively inefficient for VEPL, the WDNR, the affected municipalities, and the public, in that all parties, regardless of facility size, would have to go through the expensive and time-consuming permitting and local agreement negotiation processes. The time and expenses involved with these processes are generally fixed and not directly related to the size of the facility proposed. As a result, permitting and negotiating the local agreement for a small facility would consume the same resources as a larger facility. With limited funds, resources, and personnel, permitting and negotiating a small expansion would be inefficient for all concerned.

Additional logistical considerations associated with Alternative 2 include, but are not limited to, satisfactorily addressing NR 103; preparing a feasibility report and plan of operation, and obtaining regulatory approval of these documents from the WDNR; negotiating a local host agreement with the affected municipalities; constructing the landfill; and obtaining regulatory approval to begin filling operations. Additionally, a WDNR Chapter 30 Water Quality Certification Permit and a Section 404 Permit would be required from the U.S. Army Corps of Engineers (USACE) for wetland and waterway work. These processes would require significant regulatory agency involvement and evaluation.

This alternative would give the VEPL a site life of just 7 years. This limited site life would not afford the VEPL adequate time to explore, identify, and develop a subsequent viable expansion alternative. As a result, this alternative would necessitate pursuit of the balance of the expansion area proposed in the preferred option. Failure to permit the remaining area of the preferred option would in all likelihood result in this being the last expansion implemented at, or near, the VEPL. This alternative would also negatively impact the gas-to-energy project being developed between VEPL and the MMSD (see Subsection 3.3).

3.3 Environmental Assessment

This alternative would call for the direct filling of approximately 0.7 acre of degraded wetlands of low functional value. Wetland functional value assessments of the wetlands, conducted by a licensed water resources engineer in accordance with the WDNR's standards, are provided in Attachment 2. The development of this alternative would include an extensive storm water management system. This system would be designed to replace the flood and storm water attenuation, water quality, and wildlife habitat functions of the impacted wetlands.

Additionally, this alternative would include the construction of the Expansion around, and along, degraded wetlands of low functional value with a 50-foot minimum buffer. As a result, this alternative would have a direct impact in the form of altered drainage patterns, reduced surface water infiltration, and reduced groundwater recharge.

To provide a full 15 years of waste disposal service to the area, a new greenfield landfill would be needed resulting in 234 acres of farmland being removed from service, along with an unknown acreage of wetlands being affected which would likely be greater than the acreage associated with this alternative.

An analysis was performed to model greenhouse gas emissions associated with this alternative. Table 4 summarizes the greenhouse gas emission estimates. Specifically, if the site were not expanded and a new greenfield site were to be built approximately 50 miles away, an additional 100-mile round trip of waste trucking would be needed. This results in approximately 5,684,064 tons of CO₂-equivalent greenhouse gas emissions for the 15-year period.

The annual greenhouse gas emissions associated with this alternative are equivalent to the emissions associated with approximately 188,700 automobiles over the 15-year period.

Additionally, the MMSD is proposing to use landfill gas instead of natural gas to generate electrical energy for 7 years or more. If the landfill gas were not available, natural gas would continue to be used and would result in approximately 583,997 tons of CO₂-equivalent greenhouse gas emissions over the 8-year period after Expansion closure.

3.4 Economic Assessment

The development cost for Alternative 2 is estimated to be \$ 4.79 yd³ of developed airspace, including the greenfield portion (see Attachment 1 – Cost Estimates and Table 6). The unit cost for this alternative is substantially greater (45 percent) than for the Preferred Alternative. With a design capacity of approximately 8.1 million yd³, the total cost to develop the alternative would be approximately \$ 76.7 million (see Table 6).

The development cost was calculated by estimating the cost of the alternative, along with the added cost of the greenfield landfill. The greenfield portion of the cost was calculated by prorating portions of the greenfield by the number of years that it would be used to give the equivalent 15-year site life. This total cost was then divided by the 16 million yd³ of airspace to get the final cost/ yd³ (see Table 6).

Alternative 2 would give the VEPL an estimated site life of approximately 7 years. The development of this alternative would result in the closure of the facility 8 years before closure

would have occurred had a 15-year alternative (the Preferred Alternative) been implemented. The development and operation of Alternative 2 would have both direct and indirect economic impacts on the local community and the 10-county service area (see Table 2). The adverse economic impacts would be as follows:

- The local purchase of supplies and services by VEPL, and the payment of wages to VEPL employees who are local residents. The stimulating, increasing effects of these monies on the local economy were conservatively not included.
- Host fees and in-kind services that are to continue to be provided under the local host agreement at the VEPL. VEPL and the local host communities have already agreed to adopt the existing host agreement for this landfill expansion (see Table 5).
- The need to redirect and transport waste (previously disposed at the VEPL) to other landfills serving the service area, after the VEPL closes.
- Decreased competition in the service area. Closure of the VEPL would allow the service area market to potentially be monopolized by a single privately-owned waste management company (see Figure 2). Based on historical competitive changes in the Wisconsin marketplace, the closure of the VEPL would result in a direct increase in disposal pricing within, and adjacent to, the service area. The economic impact considered was conservatively limited to the service area.

Local Economic Benefits From Services and Labor -This alternative would provide an economic benefit to the local community for the 7 years that it is in operation as a direct result of the money that would be returned to the local economy in the form of services and materials purchased, and wages paid by VEPL, resulting in no positive, stimulating, and increasing effects on the local economy. Thereafter, there would be no significant positive economic impact on the local community, as the facility would be closed. Ignoring the stimulating effect, and looking only at the direct and immediate financial impact, Alternative 2, with its much shorter site life than Alternative 5, would effectively result in an economic benefit of \$ 46 million (when normalized with a hypothetical 15-year life for comparison purposes). Refer to Table 2.

Local Economic Benefits from Host Fees and In-kind Services - The VEPL would close after 7 years of operation under this alternative, and there would be less host fees and in-kind services for the local area. This would result in an economic benefit to the local area of approximately \$ 111 million (when normalized with a hypothetical 15-year life for comparison purposes), which is substantially less than for the Preferred Alternative (refer to Table 2).

Waste Transportation Costs - Because the VEPL would close after 7 years of operation under this alternative, there would be an adverse impact relating to the cost of waste disposal within the 10-county service area when the VEPL closes. An adverse economic impact to local

municipalities, industries, and residents would occur because there would be a need to redirect and transport waste to more distant landfills, resulting in increased waste transportation costs due to an increase in fuel consumption, labor costs, and wear and tear on the trucks. The increased costs would be borne by the municipalities, businesses, and residents of the 10-county service area. This cost increase is estimated to be \$ 37 million (when normalized with a hypothetical 15-year life for comparison purposes). Refer to Table 2. Additional potential lost benefits include greenhouse gas emissions (Table 4), and an increase in the potential for traffic related deaths, using National Highway Traffic Safety Administration (NHTSA) statistics associated with the increased truck miles, as well as the increased wear and tear on the roads.

Service Area Competition -With this alternative, the VEPL would close after 7 years, potentially allowing the service area to be monopolized by a single privately-owned waste management company (see Figure 2). Based on historical competitive changes within Wisconsin marketplaces, the closure of VEPL would likely result in increased disposal pricing for the waste generated within the 10-county service area. This increased cost of disposal would be borne by the municipalities, businesses, and residents within the service area. This increased cost would be approximately \$ 41 million (when normalized with a hypothetical 15-year life for comparison purposes). Refer to Table 2.

3.5 Conclusion

In conclusion, Alternative 2 – No Direct Impact to Agricultural Ditches and the Setback From 8-Mile Road would be extremely difficult logistically to construct and operate because of its irregular shape. It would be financially and administratively inefficient for VEPL, the WDNR, the affected municipalities, and the public, in that all parties would have to go through the expensive and time-consuming permitting and local negotiation processes for only 7 years of site life. This alternative has a prohibitively higher development cost, and its unit cost is substantially greater than that of the other alternatives evaluated. This alternative will provide 34 percent less airspace capacity per acre of land than the Preferred Alternative No. 5. Since it would result in the long-term closure of the VEPL in Waukesha County, the development of this alternative would not allow for achieving the overall stated project purpose. This alternative would result in increased waste transportation and disposal costs, while potentially creating a near-monopoly of the 10-county service area by a single, privately-owned waste management company within 7 years. It would also result in a loss of the money that has historically been returned to the local economy in the form of services and materials purchased, wages paid by VEPL, as well as host fees and in-kind services provided by Veolia under a local host agreement. When considering the economic impacts to the local community and service area, Alternative 2 would have a substantial negative economic impact on the local economy. Normalizing this alternative with a hypothetical 15-year site life for comparison purposes, the

net negative economic impact is estimated to be \$ 241 million considering services, materials, host fees, and in-kind services to the local economy as compared to the Preferred alternative. Refer to Table 2. The benefits derived from the proposed MMSD landfill gas-to-energy project would also be negatively impacted. **As a result, Alternative 2 is not a practicable alternative as defined in NR 103.07(2).**

Section 4

Alternative 3 – No Impacts to Wetlands

The third design alternative evaluated is Alternative 3 – No Impacts to Wetlands. This design alternative would consist of a downsized, reconfigured expansion south of the existing VEPL. This alternative would not directly impact wetlands. Approximately 4 years of site life would be provided by this expansion plus a greenfield landfill with a prorated 11-year capacity for a total airspace of 16.3 million yd³ for 15 years. The conceptual design for this alternative is presented on Figure 4.

4.1 Technical Assessment

The conceptual design for this landfill consists of a 44-acre footprint that includes the expansion footprint and an area over the existing landfill that would contain approximately 4.3 million yd³ of airspace, with an associated site life of approximately 4 years. The construction of this alternative would not affect or degrade wetlands. As a result, the footprint has a very irregular shape. Because of the reduced footprint size and the irregular shape, a number of construction issues and inefficiencies would exist. Because of the reduced width and extent of the footprint, significant acreages would be affected while generating minimal airspace. This alternative would generate approximately 146,000 yd³ of airspace per acre of footprint or 101,000 yd³ of airspace per acre of affected land. For comparison purposes, the Preferred Alternative would generate approximately 229,000 yd³ of airspace per acre of footprint or 183,000 yd³ of airspace per acre of affected land. In addition, a greenfield site would be needed to provide the additional 11 years of capacity to achieve the 15 total years of waste disposal service, requiring 234 acres (for a 15-year site, even if only an 11-year capacity is needed). The area would include agricultural land removed for the landfill and infrastructure needed to support a landfill: roads, fencing, leachate tanks, piping, scale, offices, maintenance building, and LFG building/flare. It is also conceivable that the siting of any greenfield site would directly or indirectly affect a greater amount of wetlands than any of the proposed alternatives or preferred option which would seem to be inconsistent with the intent and spirit of NR 103.

The property on which this alternative would be built is currently zoned M-3 Landfill (see Figure 7).

4.2 Logistical Assessment

This alternative would not be financially or administratively efficient for VEPL, the WDNR, the affected municipalities, and the public, in that all parties, regardless of facility size, would have to go through the expensive and time-consuming permitting and local negotiation processes. The time and expenses involved with these processes are generally fixed and not directly related to the size of the facility proposed. As a result, permitting and negotiating the local agreement for a small facility consumes the same resources as a larger facility. With limited funds, resources, and personnel, permitting and negotiating a small expansion is inefficient for all concerned.

Additional logistical considerations associated with Alternative 3 include, but are not limited to, satisfactorily addressing NR 103; preparing a feasibility report and plan of operation, and obtaining regulatory approval of these documents from the WDNR; negotiating a local host agreement with the affected municipalities; constructing the landfill; and obtaining regulatory approval to beginning filling operations. These processes would require significant regulatory agency involvement and evaluation.

This alternative would give the VEPL a site life of just 4 years. This limited site life would not afford the VEPL adequate time to explore, identify, and develop a subsequent viable expansion alternative. As a result, this alternative would, in all likelihood, be the last expansion implemented at, nor near, the VEPL. This alternative would also be detrimental to the landfill gas-to-energy project currently being developed between VEPL and the MMSD (see Subsection 4.3).

4.3 Environmental Assessment

This alternative would call for the construction of a landfill expansion that would not impact wetlands. Functional value assessments of the adjacent wetlands, conducted by a licensed water resources engineer in accordance with the WDNR's standards, are included in Attachment 2. The development of this alternative would include an extensive storm water management system. This system would be designed to replace the flood and storm water attenuation, water quality, and wildlife habitat functions of the impacted wetlands.

This alternative would include the construction of this landfill expansion between W4, W6, W6A, W7, W9, and W12. As a result, this alternative would have an impact in the form of altered drainage patterns, reduced surface water infiltration, and reduced groundwater recharge.

An analysis was performed to model greenhouse gas emissions associated with this alternative. Table 4 summarizes the greenhouse gas emission estimates. Specifically, if the site were not

expanded and a new greenfield site was to be built approximately 50 miles away, an additional 100-mile round trip for the hauling of waste would be required. This results in approximately 5,702,743 tons of CO₂-equivalent greenhouse gas emissions over the 15-year period. The annual greenhouse gas emissions associated with this alternative are equivalent to the emissions associated with approximately 191,800 automobiles over the 15-year period.

Additionally, the MMSD is proposing to use landfill gas instead of natural gas for the operation of their Jones Island facility and associated infrastructure. If the landfill gas were not available, natural gas would continue to be used and would result in approximately 291,999 tons of CO₂-equivalent greenhouse gas emissions over the 4-year period after Expansion closure. The balance of the waste disposal capacity not available at VEPL would be located at too great a distance to feasibly pipe it to MMSD. The landfill gas generated within this greenfield facility would conceivably be flared off rather than utilized.

4.4 Economic Assessment

The development cost for Alternative 3 is estimated to be \$ 5.27/yd³ of developed airspace, including the greenfield portion (see Attachment 1 – Cost Estimates). The unit cost for this alternative is substantially greater (*i.e.*, 30 and 45 percent) than for the three other alternatives (Alternative 2, 4, and the Preferred Alternative No. 5, respectively). With a design capacity of approximately 4.3 million yd³, the total cost to develop the alternative would be approximately \$ 84.3 million (see Table 6).

The development cost was calculated by estimating the cost of the alternative, along with the added cost of the greenfield landfill. The greenfield portion of the cost was calculated by prorating portions of the greenfield by the number of years that it would be used to give the equivalent 15-year site life. This total cost was then divided by the 16 million yd³ of airspace to get the final cost/ yd³ (see Table 6). Alternative 3 would have an estimated site life of approximately 4 years. The development of this alternative would result in the closure of the facility 11 years before closure would have occurred had a 15-year alternative (*i.e.*, the Preferred Alternative) been implemented. Development and operation of Alternative 3 would have both direct and indirect economic impacts on the local community and the 10-county service area (see Table 2). These economic impacts would be as follows:

- The local purchase of supplies and services by Veolia, and the payment of wages to VEPL employees who are local residents. The stimulating, increasing effects of these monies on the local economy were conservatively not included.
- Host fees and in-kind services that will be provided under the local agreement at the VEPL. As VEPL and the affected municipalities have already agreed on adopting the

current agreement for this expansion, the local communities are poised to receive the same benefits they are currently receiving under the current agreement. (see Table 5).

- The need to redirect and transport waste (previously disposed at the VEPL) to other landfills serving the service area after the VEPL closes.
- Decreased competition in the service area. Closure of the VEPL would allow the service area market to potentially be monopolized by a single privately-owned waste management company (see Figure 2). Based on historical competitive changes in the Wisconsin marketplace, the closure of the VEPL would likely result in a direct increase in disposal pricing within and adjacent to the service area. The economic impact considered was conservatively limited to the service area.

Local Economic Benefits From Services and Labor - This alternative would provide an economic benefit to the local community for the 4 years that it is in operation as a direct result of the money that would be returned to the local economy in the form of services and materials purchased, and wages paid by VEPL, resulting in no positive, stimulating, and increasing effects on the local economy. Thereafter, there would be no significant positive economic impact on the local community, as the facility would be closed. Ignoring the stimulating effect, and looking only at the direct and immediate financial impact, Alternative 3, with its much shorter site life than Alternative 5, would effectively result in an economic benefit of \$ 26 million (when normalized with a hypothetical 15-year life for comparison purposes). Refer to Table 2.

Local Economic Benefits From Host Fees and In-Kind Services - The VEPL would close after 4 years of operation under this alternative, and there would be less host fees and in-kind services for the local area. This would result in an economic benefit to the local area of approximately \$ 60 million (when normalized with a hypothetical 15-year life for comparison purposes), which is substantially less than the Preferred Alternative (refer to Table 2).

Waste Transportation Costs - Because the VEPL would close after 4 years of operation under this alternative, there would be an adverse impact relating to the cost of waste disposal within the 10-county service area when the VEPL closes. An adverse economic impact to local municipalities, industries, and residents would occur because there would be a need to redirect and transport waste to more distant landfills, resulting in increased waste transportation costs due to an increase in fuel consumption, additional labor costs, and wear and tear on the trucks. The increased costs would be borne by the municipalities, businesses, and residents of the 10-county service area. This cost increase is estimated to be \$ 54 million (when normalized with a hypothetical 15-year life for comparison purposes). Refer to Table 2. Additional potential lost benefits include an increase in greenhouse gas emissions (Table 4), and an increase in traffic deaths (using NHTSA estimates) due to more large trucks on the road driving more miles, and more wear and tear on the roads.

Service Area Competition - With this alternative, the VEPL would close after 4 years, potentially allowing the service area to be monopolized by a single privately-owned waste management company (see Figure 2). Based on historical competitive changes within Wisconsin marketplaces, the closure of VEPL would likely result in increased disposal pricing for the waste generated within the 10-county service area. This increased cost of disposal would be borne by the municipalities, businesses, and residents within the service area. This increased cost would be approximately \$ 60 million (when normalized with a hypothetical 15-year life for comparison purposes). Refer to Table 2.

4.5 Conclusion

In conclusion, Alternative 3 – No Impact to Wetlands would be financially and administratively inefficient for VEPL, the WDNR, the affected municipalities, and the public, in that all parties would have to go through the expensive and time-consuming permitting and local negotiation processes for only 4 years of site life. This alternative has a prohibitively higher development cost, and its unit cost is substantially greater than that of the other alternatives evaluated. This alternative will provide 81 percent less airspace capacity per acre of land than the Preferred Alternative No. 5. Since it would result in the long-term closure of the VEPL in Waukesha County, the development of this alternative would not allow for achieving the overall stated project purpose. This alternative would result in increased waste transportation and disposal costs, while potentially creating a near-monopoly of the 10-county service area by a single, privately-owned waste management company within 4 years. It would also result in a loss of the money that has historically been returned to the local economy in the form of services and materials purchased, wages paid by VEPL, as well as host fees and in-kind services provided by Veolia under the local host agreement. When considering the economic impacts to the local community and service area, Alternative 3 would have a substantial negative economic impact on the local economy. Normalizing this alternative with a hypothetical 15-year site life for comparison purposes, the net negative economic impact is estimated to be \$ 347 million considering services, materials, host fees, and in-kind services to the local economy as compared to the Preferred alternative. Refer to Table 2. **As a result, Alternative 3 is not a practicable alternative as defined in NR 103.07(2).**

Section 5

Alternative 4 -

Avoid Wetland No. 12 Alternative

The fifth design alternative evaluated is the Avoid Wetland No 12. This design alternative would consist of constructing the landfill expansion southwest of the existing VEPL and avoiding Wetland No. 12. The development of this alternative would result in the direct filling of 11 acres of wetlands, and would provide approximately 14 years of site life, including a prorated 1-year greenfield. The conceptual design for this alternative is presented on Figure 6.

5.1 Technical Assessment

The conceptual design for this landfill consists of a 86.81-acre footprint that includes the expansion footprint and the area over the existing landfill, which would contain approximately 14.7 million yd³ of airspace. The construction of this expansion would necessitate the direct filling of 11.03 acres of degraded wetlands of low functional value (W6, W6a, and W7, as well as portions of W9). This alternative would generate approximately 226,566 yd³ of airspace per acre of footprint or 175,000 yd³ of airspace per acre of affected land. For comparison purposes, Preferred Alternative No. 5 would generate approximately 229,000 yd³ of airspace per acre of footprint or 183,000 yd³ of airspace per acre of affected land. In addition, a greenfield site would be needed to provide an additional 1 year of capacity to achieve 15 years of waste disposal service, requiring 234 acres (for a 15-year site, even if only a 1-year capacity is needed). The area would include agricultural land to be removed for the landfill and infrastructure needed to support a landfill: roads, fencing, leachate tanks, piping, scale, offices, maintenance building, and LFG building/flare. This alternative, along with the Preferred Alternative (Alternative 5), would postpone the need for a greenfield site longer than the other alternative, thus, reducing the direct or indirect impact on wetlands at another location, which would be consistent with the intent of NR 103.

5.2 Logistical Assessment

The logistical considerations associated with this alternative include, but are not limited to, satisfactorily addressing NR 103; preparing a feasibility report and plan of operation, and obtaining regulatory approval of these documents from the WDNR; negotiating a local host agreement with the affected municipalities; constructing the landfill; and obtaining regulatory approval to begin filling operations. Additionally, a WDNR Water Quality Certification Permit

and a Section 404 Permit would be required from the USACE for wetland work. These processes would require significant regulatory agency involvement and evaluation.

5.3 Environmental Assessment

This alternative would result in the direct filling of approximately 11.03 acres of degraded wetlands of low functional value (W6, W6a, W7, and W9). Functional assessments of these wetlands, conducted by a licensed water resources engineer, in accordance with the WDNR's standards, are included in Attachment 2. The development of this alternative includes an extensive storm water management system. This system would be designed to replace the flood and storm water attenuation, water quality, and wildlife habitat functions of the impacted wetlands.

Since this alternative would result in the direct filling of approximately 11.03 acres of degraded wetlands, VEPL has proposed a 76-acre high-quality restoration project, including 43 acres of wetland and 33 acres of upland/prairie areas. VEPL has committed significant time, effort, and funds to restore and enhance historical wetlands that are upstream and in the immediate vicinity of Big Muskego Lake. This project would provide an opportunity to replace the 11.03 acres of degraded wetlands of low and moderate functional value affected by the development of the Preferred Alternative with significantly more acres of higher quality wetlands and native upland buffer. For more specific details of the Wetland Restoration, see Section 9.

An analysis was performed to model greenhouse gas emissions associated with this alternative. Table 4 summarizes the greenhouse gas emission estimates. Specifically, if the site were not expected and a new greenfield site was to be built approximately 50 miles away, an additional 100-mile round trip of waste trucking would be needed. This results in approximately 4,515,552 tons of CO₂-equivalent greenhouse gas emissions over the 15-year period.

The annual greenhouse gas emissions associated with this alternative are equivalent to the emissions associated with approximately 21,385 automobiles over the 15-year period.

Additionally, the MMSD is proposing to use landfill gas for the operation of their Jones Island facility and associated infrastructure instead of natural gas. Although the volume of landfill gas the disposal capacity realized with Alternative 4 would not provide the greatest offset to the volume of natural gas used it would provide the greatest offset compared to the preferred alternative. If the landfill gas were not available, natural gas would continue to be used and would result in approximately 8,050 tons of CO₂-equivalent greenhouse gas emissions over the 1-year period after Expansion closure.

5.4 Economic Assessment

The development cost for Alternative 4 is estimated to be \$ 3.68/yd³ of developed airspace plus a 1 year prorated greenfield (see Attachment 1 – Cost Estimates), with a design capacity of approximately 14.7 million yd³. The total cost to develop the alternative would be approximately \$ 58.9 million (see Table 6).

The development cost was calculated by estimating the cost of the alternative, along with the added cost of the greenfield landfill. The greenfield portion of the cost was calculated by prorating portions of the greenfield by the number of years that it would be used to give the equivalent 15-year site life. This total cost was then divided by the 16 million yd³ of airspace to get the final cost/ yd³ (see Table 6).

The development and operation of Alternative 4 would have both direct and indirect economic impacts on the local community and the 10-county service area (see Table 2). These economic impacts would be as follows:

- The local purchase of supplies and services by VEPL and the payment of wages to VEPL employees who are local residents. The stimulating, increasing effects of these monies on the local economy were conservatively not included.
- Host fees and in-kind services that have been historically provided under the local agreement with VEPL. The assumption is that any expansion alternative would include a local agreement generally similar to the current agreement.

Local Economic Benefits From Services and Labor - This alternative would provide an economic benefit to the local community for the 14 years that it is in operation as a direct result of the money that would be returned to the local economy in the form of services and materials purchased, and wages paid by VEPL, resulting in positive, stimulating, and increasing effects on the local economy. Ignoring the stimulating effect, and looking only at the direct and immediate financial impact, Alternative 4 would effectively result in an economic benefit of \$ 200 million. Refer to Table 2.

Local Economic Benefits From Host Fees And In-Kind Services - The VEPL site will operate for 14 years, which would provide host fees and in-kind services for the local area. This would result in an economic benefit to the local area of approximately \$ 200 million. Refer to Table 2.

Waste Transportation Costs - Because the VEPL site would operate for 14 years, there would only be a 1-year additional cost associated with waste transportation within the 10-county service area. Refer to Table 2.

Service Area Competition - With this alternative, the VEPL site would operate for 14 years and would dispose of waste in a greenfield site for the final year and would provide healthy competition in the service area (see Figure 2). Therefore, it is not likely to result in increased disposal pricing for the waste generated within the 10-county service area. Refer to Table 2.

5.5 Conclusion

In conclusion, Alternative 4 would have a 14-year site life, plus 1 year to a greenfield site; would have a reasonable development cost; and would provide a significant long-term positive economic impact on the local community and service area. Development of the Preferred Alternative would achieve the project VEPL expansion objective and provide environmentally responsible solid waste disposal services to the 10-county service area. This alternative will provide 5 percent less disposal capacity per acre of land use than the Preferred Alternative 5. This alternative would provide an economic benefit to the local area of approximately \$ 277 million; however, a negative economic impact of \$ 43 million over Alternative 5. Refer to Table 2.

As a result, this alternative, although not the most practicable, would be consistent with the criteria defined in NR 103.07(2).

Section 6

Alternative 5 – Preferred Alternative

The fourth design alternative evaluated is the Preferred Alternative. This design alternative would consist of constructing the landfill expansion southwest of the existing VEPL. The development of this alternative would result in the direct filling of 14.3 acres of wetlands, and would provide approximately 15 years of site life. The conceptual design for this alternative is presented on Figure 5.

6.1 Technical Assessment

The conceptual design for this landfill consists of a 92-acre footprint that includes the expansion footprint and the area over the existing landfill, which would contain approximately 16.3 million yd³ of airspace. The construction of this expansion would necessitate the direct filling of 14.3 acres of degraded wetlands of low functional value (W6, W6a, and W7, as well as portions of W9). This alternative would delay the need for a greenfield site the longest of all the alternatives, thus, reducing the direct or indirect impact on wetlands at another location, which would be consistent with the intent of NR 103.

The property on which this alternative would be built is currently zoned M-3 Landfill (Figure 7). With this alternative, the full benefits of a gas-to-energy project between Veolia and the MMSD can be realized. The economic benefits to the local government can continue without disruption for 15 years.

6.2 Logistical Assessment

The logistical considerations associated with the Preferred Alternative include, but are not limited to, satisfactorily addressing NR 103; preparing a feasibility report and plan of operation, and obtaining regulatory approval of these documents from the WDNR; negotiating a local host agreement with the affected municipalities; constructing the landfill; and obtaining regulatory approval to begin filling operations. Additionally, a WDNR Water Quality Certification Permit and a Section 404 Permit would be required from the USACE for wetland work. These processes would require significant regulatory agency involvement and evaluation.

6.3 Environmental Assessment

This alternative would result in the direct filling of approximately 14.3 acres of degraded wetlands of low functional value (W6, W6a, W7, and W9). Functional assessments of these

wetlands, conducted by a licensed water resources engineer, in accordance with the WDNR's standards, are included in Attachment 2. The development of this alternative includes an extensive storm water management system. This system would be designed to replace the flood and storm water attenuation, water quality, and wildlife habitat functions of the impacted wetlands.

Since this alternative would result in the direct filling of approximately 14.3 acres of degraded wetlands, VEPL has proposed a 76-acre high-quality restoration project, including 43 acres of wetland and 33 acres of upland/prairie areas. VEPL has committed significant time, effort, and funds to restore and enhance historical wetlands that are upstream and in the immediate vicinity of Big Muskego Lake. This project would provide an opportunity to replace the 14.3 acres of degraded wetlands of low and moderate functional value affected by the development of the Preferred Alternative with significantly more acres of higher quality wetlands and native upland buffer. For more specific details of the Wetland Restoration, see Section 9.

The annual greenhouse gas emissions associated with this alternative are equivalent to the emissions associated with approximately 7,900 automobiles over the 15-year period.

Additionally, the MMSD is proposing to use landfill gas for the operation of their Jones Island facility and associated infrastructure. The volume of landfill gas the disposal capacity realized with Alternative 5 would provide the greatest offset to the volume of natural gas used, resulting in a reduction of approximately 47,753 tons of greenhouse gas emissions over a 15-year period.

6.4 Economic Assessment

The development cost for the Preferred Alternative is estimated to be \$ 3.30/yd³ of developed airspace (see Attachment 1 – Cost Estimates). The unit cost for this alternative is the lowest of the various alternatives. With a design capacity of approximately 16.3 million yd³, the total cost to develop the alternative would be approximately \$ 52.8 million (see Table 1).

The development and operation of the Preferred Alternative would have both direct and indirect economic impacts on the local community and the 10-county service area (see Table 2). These economic impacts would be as follows:

- The local purchase of supplies and services by VEPL and the payment of wages to VEPL employees who are local residents. The stimulating, increasing effects of these monies on the local economy were conservatively not included.
- Host fees and in-kind services that have been historically provided under the local agreement with VEPL. The assumption is that any expansion alternative would include a local agreement generally similar to the current agreement.

Local Economic Benefits From Services and Labor - This alternative would provide an economic benefit to the local community for the 15 years that it is in operation as a direct result of the money that would be returned to the local economy in the form of services and materials purchased, and wages paid by VEPL, resulting in positive, stimulating, and increasing effects on the local economy. Ignoring the stimulating effect, and looking only at the direct and immediate financial impact, Alternative 5, would effectively result in an economic benefit of \$ 98 million (because this Alternative has a 15-year site life, it is not necessary to normalize it with a hypothetical 15-year life for comparison purposes). Refer to Table 2.

Local Economic Benefits From Host Fees and In-Kind Services - The VEPL site will operate for 15 years, which would provide host fees and in-kind services for the local area. This would result in an economic benefit to the local area of approximately \$ 222 million (because this Alternative has a 15-year site life, it is not necessary to normalize it with a hypothetical 15-year life for comparison purposes). Refer to Table 2.

Waste Transportation Costs - Because the VEPL site would operate for 15 years, there would not be an additional cost associated with waste transportation within the 10-county service area. Refer to Table 2.

Service Area Competition - With this alternative, the VEPL site would operate for 15 years and would provide healthy competition in the service area (see Figure 2). Therefore, it is not likely to result in increased disposal pricing for the waste generated within the 10-county service area. Refer to Table 2.

6.5 Conclusion

In conclusion, Alternative 5 – Preferred Alternative would have a 15-year site life, would have a reasonable development cost, would provide a significant long-term positive economic impact on the local community and service area, and would provide 100%, 34%, 81%, and 5% more airspace capacity per acre of land than Alternatives No. 1, 2, 3, and 4, respectively. Development of the Preferred Alternative would achieve the project VEPL expansion objective and provide environmentally responsible solid waste disposal services to the 10-county service area. This alternative would provide an economic benefit to the local area of approximately \$ 320 million (because this Alternative has a 15-year site life, it is not necessary to normalize it with a hypothetical 15-year life for comparison purposes). Refer to Table 2.

As a result, the Preferred Alternative would be the most practicable alternative as defined in NR 103.07(2).

Section 7

Practicable Alternatives Analysis Summary

Because the Expansion would impact more than 0.1 acre of wetlands, and because the Expansion would not be water or wetland dependent, NR 103 requires an analysis of the practicable project alternatives. Recognizing that existing landfills by their nature are not readily relocated, and that the general public interest is not served by facilitating the relocation of existing, compliant landfills to new, undeveloped “greenfield” locations, WDNR guidance allows for the alternatives review to “... be limited to areas adjacent to or on the same property ...” as the existing landfill (WDNR guidance) (WDNR, 2007a). NR 103.07(2) defines practicable alternatives as “... available and capable of being implemented after taking into consideration cost, available technology, and logistics in light of the overall project purpose.”

In an effort to develop a comprehensive group of potential expansion alternatives, alternatives that might achieve the project purpose, RMT and VEPL, through an iterative process with WDNR staff, developed five substantially different expansion project alternatives that warrant evaluation. These alternatives include taking no action (*i.e.*, constructing a greenfield site), using alternative sites (*i.e.*, sites within the boundary of the property where the existing landfill is located or property immediately adjacent to the existing landfill that is owned by VEPL), and downsizing and/or reconfiguring the expansion to avoid wetland impacts. The alternatives generally range from the no-action alternative, which would have the VEPL close without an expansion, to several designs that would allow for up to 15 years of additional site life. Each of the five design alternatives were examined on the basis of expansion site life, acreage requiring disturbance, agricultural acreage impacted, local zoning and public acceptance (*i.e.*, land use compatibility), indirect and direct impacts to wetlands, the cost of landfill construction and development, technical feasibility, logistics, air quality impacts to the environment, and the direct and indirect economic impact on Waukesha County and the surrounding area. Tables 1 and 2 summarize the analysis of the various design alternatives utilizing these criteria.

After a practicability analysis of the five design alternatives, in accordance with NR 103 and the associated WDNR guidance document, only Alternative 5 – Preferred Alternative was most practicable. This conclusion was reached based on the following considerations.

The Preferred Alternative would be technically and logistically practical to permit, operated as a compliant state-of-the-art facility, and maintained throughout the required 40-year post-closure care period. The Preferred Alternative would also maintain the landfill at its current location, which has already been approved by the local community. It would provide for long-

term, cost-effective, uninterrupted waste disposal, recycling, and composting services for the 10-county service area, achieving the stated project purpose.

The Preferred Alternative would be the most financially and administratively efficient alternative for the local community, the WDNR, and the VEPL, given that an extensive, time-intensive permitting process would be conducted once to provide 15 years of additional site life.

7.1 Environmental Assessment

The Preferred Alternative would provide for the most efficient, highest-value use of land resources, and would maximize the utilization of the existing landfill property—property that is industrially-impacted and has been used for waste disposal purposes since 1994.

An analysis was performed to model greenhouse gas emissions associated with each alternative (refer to Table 4). Specifically, if the site were not expanded per the preferred Alternative 5, a new greenfield site will need to be built approximately 50 miles away to accommodate a 15-year site life for comparison purposes. An additional 100-mile round trip of waste trucking would be needed to get to the greenfield site.

The following summarizes the model output for the five alternatives:

ALTERNATIVE	GREENHOUSE GAS CO ₂ EQUIVALENT FOR 15 YEARS ⁽¹⁾ (tons)	VEHICLE GREENHOUSE GAS EQUIVALENTS FOR 15 YEARS ⁽²⁾
1	4,631,600	13,800
2	4,593,700	7,600
3	4,609,900	10,200
4	2,175,900	900
5	2,000,500	16

Notes:

⁽¹⁾ Includes fossil fuels and landfill gas emissions.

⁽²⁾ Based on USEPA estimates of carbon dioxide equivalent.

As noted, Alternative 5 has the lowest greenhouse gas emissions. This is due to the fact that the assumed 100-mile round trip waste trucking to a Greenfield would not be required and that the landfill gas generated can be used at MMSD to offset the use of natural gas. The equivalent number of automobile that would emit greenhouse gas equivalents are shown for illustration purposes.

7.2 Economic Assessment

The cost to develop the Preferred Alternative would be reasonable (i.e., \$ 3.30/yd³ of airspace) and substantially lower than the cost to develop Alternatives 2 and 3. Alternatives 2 and 3 have development costs that are 12 and 45 percent greater, respectively, than that of the Preferred Alternative. The cost differences between the Preferred Alternative and Alternatives 2 and 3 are significant. Normalized over a hypothetical 15-year facility operating life, these differences translate into development costs that are \$ 8 million and \$ 26 million greater than the Preferred Alternative for Alternatives 2 and 3, respectively (see Table 1).

The Preferred Alternative would provide for a reasonable site life and, as a result, would minimize adverse impacts relating to the cost of waste disposal within the 10-county service area that will result at the time of closure. This adverse economic impact to local municipalities, industries, and residents would occur when the VEPL closes as a direct result of the need to redirect and transport waste to more distant landfills. Alternatives 2 and 3, with their shorter site lives, would result in increased transportation and fuel costs. These costs would be borne by the businesses and residents of the 10-county service area. These cost increases are conservatively estimated to be \$ 37 million and \$ 54 million, for Alternatives 2 and 3, respectively, when compared to the Preferred Alternative (see Table 2).

The Preferred Alternative would maintain aggressive, healthy competition within the 10-county service area for another 15 years and would not allow the market area to potentially be monopolized by a single privately-owned waste management company (see Figure 2). Based on historical competitive changes within Wisconsin marketplaces, the closure of the VEPL will result in increased disposal pricing for the waste generated within the 10-county service area. This increased cost of disposal would be borne by the municipalities, businesses, and residents within the service area. This increased cost would be approximately \$ 41 million, and \$ 60 million for Alternatives 2 and 3, respectively, when compared to the Preferred Alternative.

The Preferred Alternative, when considering the economic impacts to the local community and service area, would have a positive economic impact on the local economy of over \$ 320 million as indicated in Table 2. Normalizing Alternatives 2 and 3, with a hypothetical 15-year life for comparison purposes, would result in a negative impact on the local economy of \$ 241 million and \$ 347 million, respectively, when compared to the Preferred Alternative.

7.3 Conclusion

In summary, based upon this Practicable Alternatives Analysis, Chapter NR 103 regulations, and the WDNR guidance document, of the five design alternatives developed and reviewed, the Preferred Alternative is the most practicable and feasible to implement. Because the

Preferred Alternative is the most practicable design, because it will affect wetlands, and because no further practicable minimization measures can be taken that would still allow the project to achieve the project purpose, NR 103.08 allows for the consideration of wetland restoration projects and the potential wetland values provided by such projects.

The Preferred Alternative eliminates the need for a greenfield site for the next 15 years, thus, reducing the direct or indirect impact on wetlands at another location, which would be consistent with the intent of NR 103.

Section 8

Analysis of Wetland, Water Quality, and Environmental Impacts

The evaluations presented in Sections 2-6 established that the Preferred Alternative is the most practicable design alternative for an expansion of the VEPL. Development of the Preferred Alternative would involve filling three degraded wetlands of low functional value, W6, W6a, and W7, and portions of wetlands of moderate functional value, W9 and W12, totaling approximately 14.3 acres. In addition, a portion of Drainage Ditch D2 (approximately 240 feet) is proposed to be filled under the Preferred Alternative (see Figure 5). This section presents an evaluation of the impacts that the development of the Preferred Alternative would have on wetlands, water quality, and the environment in accordance with NR 103. The Wetland Functional Value Assessments can be found in Attachment 2.

8.1 Wetlands Directly Impacted

The following excerpts are wetland descriptions from the December 2008 Wetland Delineation Report (NRC, 2008), prepared for VEPL by Natural Resources Consulting, Inc. (NRC). The common plant names have been added to provide clarity.

- **Wetland 4 (W4)** – W4 is a 16-acre (0 acres removed for Alternatives 1, 3, 4, and 5) wet meadow/shrub-shrub complex located to the south/southwest of the active landfill area. The only portion of this wetland that will be impacted is a small depressed corridor alongside a driveway located within the extreme southwestern corner of the wetland. Reed canary grass and red-osier dogwood dominate the vegetative communities within the area of impact. Additionally reed canary grass dominates much of the other portions of the wetland, however, prairie cordgrass and other prairie forbs, including grassleaf goldenrod and sawtooth sunflower (*Helianthus grosseserratus*) become more dominant within the northern, wet meadow portion of Wetland 4. Other species that are found within the shrub community includes sandbar willow, dogwoods, and cockspur hawthorn (*Crataegus crus-galli*). Indicators of hydric soils include a depleted matrix and thick dark surface layer (Indicators A12 and F3) and the presence of muck soils, NRCS Indicator A1. Indicators of wetland hydrology are limited to secondary indicators, including the FAC-neutral test and local soil survey data.

Uplands adjacent to Wetland 4 generally grade downward to the wetland boundaries. They are comprised of agricultural fields planted in winter wheat and soybeans (*Glycine max*), landfill slopes, and fallow fields dominated by old-field vegetation, including Canada and giant goldenrod, Kentucky bluegrass, tall fescue (*Festuca arundinacea*), reed canary grass, and dandelion. Generally,

soils at upland sampling locations did not exhibit indicators of hydric soil. Wetland hydrology indicators were not observed at upland sampling locations.

- **Wetland 6 (W6)** – W6 is a 0.19 acre (0 acres removed with Alternatives 1 and 3, all removed with Alternatives 2, 4, and 5) isolated depression within an agricultural setting, located to the southwest of the active landfill area. The vegetative community is a wet meadow dominated by reed canary grass and saplings of sandbar willow. Indicators of hydric soils include a loamy gleyed matrix, NRCS Indicator F2. Indicators of wetland hydrology are limited to secondary indicators, including the FAC-neutral test and local soil survey data.

Wetland 6 is surrounded by an agricultural field, most recently planted in soybeans. Species interspersed within the field are indicative of upland conditions, and include dandelions and Queen Anne's lace (*Daucus carota*). Soils at upland sampling locations did not exhibit indicators of hydric soils, nor were wetland hydrology indicators observed.

- **Wetland 6a (W6a)** – W6a is a 0.16 acre (0 acres removed with Alternatives 1 and 3, all removed with Alternatives 2, 4, and 5) isolated depression at the edge of an agricultural field, located to the southwest of the active landfill area. The wetland is comprised of a wet meadow community dominated by hybrid cattail (*Typha x glauca*) and barnyard grass (*Echinochloa crusgalli*). Additional wetland species that were observed include swamp tickseed (*Bidens comosus*) and water plantain (*Alisma subcordatum*). Indicators of hydric soil include a depleted matrix below a dark surface soil layer, NRCS Indicator A11. Indicators of wetland hydrology are limited to secondary indicators, including the FAC-neutral test and local soil survey data.

Wetland 6A is surrounded to the west, south, and east by agricultural fields formerly planted in soybeans and alfalfa (*Medicago sativa*). Additional species that were interspersed amongst the planted crops are indicative of upland conditions, such as dandelions and Queen Anne's lace. To the north of the W6a is an old-field community which supports upland species such as squirrel tail grass (*Hordeum jubatum*), heath aster (*Aster ericoides*), and dandelions. Soils at upland sampling locations did not exhibit indicators of hydric soils, nor were wetland hydrology indicators observed.

These areas have historically been farmed, especially in the recent past.

- **Wetland 7 (W7)** – W7 is a 0.21 acre (0 acres removed with Alternatives 1 and 3, all removed with Alternatives 2, 4, and 5) isolated depression at the edge of an agricultural field, located to the southwest of the active landfill area. The vegetative community is wet meadow dominated by river bulrush (*Scirpus fluviatilis*) and field nut sedge (*Cyperus esculentus*). In addition, remnants of soybeans are present, which indicate that most of W7 was farmed in 2005. Indicators of hydric soils include a depleted matrix below a dark surface soil layer, NRCS Indicator A11. Indicators of wetland hydrology are limited to secondary indicators, including the presence of water-stained leaves, the FAC-neutral test and local soil survey data.

Wetland 7 is bordered by an agricultural field to the west and south, most recently planted in soybeans. Vegetation within the field is indicative of upland conditions, such as dandelions and Queen Anne's lace. The northern and eastern sides of Wetland 7 support upland old-field

vegetation, including squirrel tail grass (*Hordeum jubatum*), heath aster (*Aster ericoides*), and dandelions. Soil at upland sampling locations did not exhibit indicators of hydric soil, nor were wetland hydrology indicators observed.

These areas have historically been farmed, especially in the recent past.

- **Wetland 9 (W9)** – W9 is a 37.27 acre (0 acres removed for Alternatives 1, 2, and 3, 11.03 acres removed for Alternatives 4 and 5) wetland located to the west of the active landfill area. It comprises much of the northwestern portion of the overall property. However, only the southern third of W9 will be impacted by the proposed alternative. This wetland supports an extensive wet meadow community, much of which is a monotypic stand of reed canary grass. Sedge species (*Carex stricta*, *C. lacustris*) and saw tooth sunflowers are scattered amongst the reed canary grass. Indicators of hydric soils in the wetland include a depleted layer below a dark surface soil layer or a thick dark surface layer, NRCS Indicators A11 and A12. Indicators of wetland hydrology are limited to secondary indicators, including the presence of water-stained leaves, the FAC-neutral test and local soil survey data.

The southern tip of W9 has been recently farmed, as remnant soybeans were observed within the area. However, reed canary grass was present in addition to the soybeans, which is a hydrophytic species. This portion of W9 is comprised of a muck soil, NRCS Indicator A1. Indicators of wetland hydrology are limited to secondary indicators, including the FAC-neutral test and local soil survey data.

Wetland 9 is bordered by agricultural fields and lawn areas. The agricultural fields are planted in soybeans, and the lawns in Kentucky bluegrass. Weeds in the fields and lawns are indicative of upland conditions, and include Canada goldenrod, dandelions, and Queen Anne's lace. Soils at upland sampling locations did not exhibit indicators of hydric soil, nor were wetland hydrology indicators observed.

The function of wetland W-9 for storm water attenuation was considered moderate due primarily to its overall size within the watershed. Combined with the clayey characteristics of the soils (low infiltration capacity) in the area and that the hydrologic characteristic of wetland W-9 is primarily surface water driven, the extensive ditching that historically occurred in wetland W-9 has denuded this function. This has effectively short-circuiting the benefit that this wetland provides for storm water attenuation. The residence time that is necessary to provide significant attenuation is not provided by wetland W-9.

This was one of the primary reasons why the Mitigation Review Team agreed that the mitigation efforts proposed and implemented on the Emerald Park Landfill site would provide significant storm water attenuation. This mitigation effectively removed the short-circuiting effects of the drainageways (in the area of the mitigation) thereby increasing residence time of storm water events within the system. This wetland mitigation area has effectively improved the storm water attenuation of the wetland systems on EPI and benefited the end receptor, Big Muskego Lake. This

improvement in storm water attenuation / treatment exceeds the loss due to the proposed impacts to wetland W-9, resulting in a net gain in benefit to the system.

The function of filtration of sediment and nutrients (water quality benefits) by wetland W-9, although present, is based primarily on the size of this wetland in relation to the overall watershed. As discussed under storm water attenuation functional benefits above, the short-circuiting that the drainageways through wetland W-9 provide denude the overall water quality function benefit to the overall system. However, there is a positive net benefit to the overall water quality functions of the wetland systems when adding the wetland mitigation already implemented on the EPI site. The proposed impact to the fringe of wetland W-9 from the proposed landfill cell, when accounting for the mitigation already implemented on the site, will not result in a significant loss of water quality function.

- **Wetland 12 (W12)** – W12 is a 3.67 acre (0 acres removed for Alternatives 1, 2, 3, and 4, and 2.7 acres for Alternative 5) wet meadow–shallow marsh complex located to the southwest of the active landfill area. The wet meadow community, which comprises the majority of the wetland, is dominated by monotypic stands of reed canary grass. The shallow marsh community makes up the western portion of W12 and is comprised primarily of hybrid cattail. Small areas of scrub-shrub communities are scattered though out the wetland, and are dominated by red osier dogwood, gray dogwood, sandbar willow and young green ash trees (*Fraxinus pennsylvanica*). The wetland soils are characterized by a thick dark surface layer, NRCS Indicator A12. Indicators of wetland hydrology are limited to secondary indicators, including the FAC-neutral test and local soil survey data.

Uplands adjacent to Wetland 12 include agricultural fields and wooded mounds. The agricultural fields are planted in winter wheat and alfalfa, although remnants of an earlier soybean crop remain. The wooded, topographically high areas contain plant communities dominated by oak trees, including black oak (*Quercus velutina*), northern pin oaks, and bur oaks. Soils at upland sampling locations did not exhibit indicators of hydric soils, nor were wetland hydrology indicators observed.

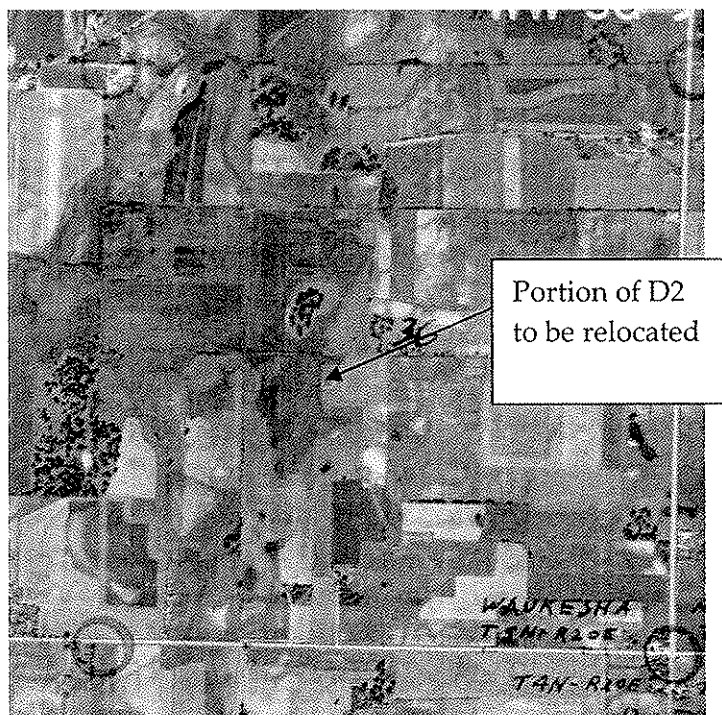
Wetlands 9 and 12 are dominated by reed canary grass. Although the wildlife habitat that these wetlands provide is ranked as moderate, this assessment is limited to a very narrow range of species such as rodent populations. Limited perching opportunities exists within these two wetlands, other than in areas far removed from the proposed impacts, for raptors to take advantage of these rodent populations for a food source. The low floral diversity that wetlands 9 and 12 exhibit cannot support the range of species necessary to draw the conclusion that the proposed impacts would result in a significant loss of wildlife habitat function that these wetlands provide.

- **Drainage ditch D2** – D2 is a channelized agricultural drainage ditch located within W9. Approximately 240 feet' of its length will be impacted by the proposed alternative. Based on historical aerials obtained of section 36, Township 5 North, Range 20 East, it can be seen that the 240 feet of D2 to be impacted by the proposed landfill cell was constructed prior to 1950. No aerials were available prior to 1950 from the Arthur H. Robinson Map Library in Madison. However, based upon the straight characteristics of D2 and associated drainageways, and the fact that there

appear to be no remnants of a natural waterway either up or downstream of D2, it appears that no historical waterways were present in the area prior to D2's construction.

Representatives of VEPL met on site with Ms. Susan Beyler of the Wisconsin Department of Natural Resources. At this time Ms. Beyler assessed the drainageways on the property. This assessment included all of drainageway D2. Ms. Beyler noted that the characteristics of D2 (straight, steep bank) were not conducive to providing the appropriate habitat for game fish reproduction or management. This comment included species such as Northern Pike.

For these reasons, VEPL feels that it is an appropriate action to not alter its original proposal to impact the proposed 240 feet of drainage ditch D2 and maximize the limits of the landfill cell in this location. Furthermore, VEPL will relocate this section of drainageway D2 further to the west of its current location. The newly constructed waterway will be located to the west of the proposed cell. It's source of water will be the proposed biocells and treated storm water drainage from the newly created subwatershed on the site.



1950

8.2 Evaluation of Impacts to Wetlands

In addition to the wetland descriptions provided in Subsection 7.1, completed functional assessments for W4, W6, W6a, W7, W9 (includes D2), and W12 were conducted in accordance with the WDNR's standards. As indicated in the wetland descriptions in Subsection 7.1 and in the functional value assessments summarized below, the Expansion will involve the filling of three degraded wetlands of low functional value, W6, W6a, and W7. Also impacted would be

portions of moderate functional value wetlands W4, W9, and W12. The results of the investigations performed by Natural Resources Consulting (NRC) on the above wetlands and other surrounding wetlands are presented in detail in the December 2008 Wetland Delineation Report (NRC, 2008).

8.2.1 Impacts to Functional Value of Wetlands

The soil, hydrology, and vegetation associated with the wetlands proposed to be filled and other surrounding wetlands were investigated by NRC to evaluate characteristics, aerial extent, and environmental value. In general, the wetlands (other than W4 and W9) may serve as small independent watersheds that collect direct precipitation and surface water runoff.

Wetland functional values are described in Attachment 2. Table 3 summarizes the significance of the wetland functional values for each wetland that will be impacted by the Preferred Alternative. Although all wetlands clearly have some value, the wetlands proposed to be disturbed have been identified as having no/low fishery habitat value and no shoreline protection value. They have also been identified as having predominately low floral diversity; low wildlife habitat value; low-to-medium water quality protection value; low groundwater value; and low aesthetics, recreational, and educational value.

The development of the Preferred Alternative would include an extensive storm water management system. This system would be designed to replace, and improve, the flood and storm water attenuation, water quality, and wildlife habitat functions presently provided by the wetlands to be impacted.

Based on current technology and potential designing efforts, the predevelopment versus post-development water budget would be similar. Thus, the functional value of the remaining surrounding wetland areas would not be significantly affected by the development.

8.2.2 Significance of Impacts to Water Quality Standards (per NR 103.03)

To assess the significance of the impacts to the wetland areas located within the expansion area, the "wetland water quality standards" contained in NR 103.03(1) are addressed as follows:

1. As a result of the historical surrounding agricultural and industrial practices within the Proposed Expansion area, W6, W6a, and W7 provide minimal storm water and

flood water attenuation. W4, W9, and W12 provide for a moderate level of storm water attenuation.

2. As a result of the historical surrounding agricultural and industrial practices within the Proposed Expansion area, W4, W6, W6a, W7, W9, and W12 provide minimal hydrologic functions. These wetlands are formed within a clayey soil, the hydrology of which is primarily surface water driven.
3. As a result of the historical surrounding agricultural and industrial practices within the Proposed Expansion area, W4, W6, W6a, W7, W9, and W12 provide moderate filtration or storage of sediment and nutrients. These wetlands are located within the upper reaches of the Big Muskego Lake watershed and act to provide filtration of sediment prior to discharge to this area of special natural resource interest.
4. W4, W6, W6a, W7, W9, and W12 are not associated with shorelines.
5. As a result of the historical surrounding agricultural and industrial practices within the Proposed Expansion area, W6, W6a, and W7 provide minimal habitat for resident and transient wildlife species. W4, W9, and W12 provide moderate habitat for resident and transient wildlife species.
6. As a result of the historical surrounding agricultural and industrial practices, and their physical location, W4, W6, W6a, W7, W9, and W12 provide minimal recreational, cultural, educational, scientific, and natural aesthetic value and/or uses.

When combined with the wetland restoration efforts that VEPL has on its lands to the west, the filling of W4, W6, W6a, W7, D2, and portions of W9 and W12 would have little to no effect on the wetland water quality standards identified in NR 103.03(1).

The water quality standards in the wetlands surrounding the Expansion would be positively influenced (in a manner similar to that implemented at the existing landfill) by the development of sedimentation basins/ponds and wetland biofilters. These constructed features would be assessed on a regular basis and managed accordingly to promote additional surrounding wetland functional development.

8.2.3 Cumulative Impacts and Potential Secondary Impacts

Secondary impacts associated with the development of the Preferred Alternative would be minimal because the support and leachate handling facilities already in place would continue to be used for the expansion. The traffic from waste transportation vehicles would be managed similarly to existing traffic with levels of noise and dust associated with the Expansion project expected to be similar to existing levels. The Expansion would be located on approximately 630 acres of land owned by VEPL; thus, visual

impacts from the site would be mitigated by setback distances, natural and planted vegetation, and berms surrounding the site.

The project is not expected to have significant impact on the biological communities in the area. Clay soil for the expansion liner and cover systems would come from within the Expansion footprint.

Secondary impact to the hydrology of remaining wetlands as a result of proposed filling activities will be countered with the use of constructed wetland biofilters. These biofilters will be positioned such that hydrology will be replaced within remaining wetlands from which surface water will be diverted as a result of the proposed landfill expansion.

8.2.4 Impacts to Wetland Areas of Special Natural Resource Interests (per NR 103.04)

NR 103.04 requires that the impacts to wetlands in areas of special natural resources be assessed. NR 103.04 lists specific areas designated as having special natural resource interest. A review of these listed areas clearly establishes that W4, W6, W6a, W7, and W12 are not within the boundary of a designated area of special natural resource interest, and that they are not in proximity to, nor do they have direct hydrologic connection to, such a designated area. However, it does appear that W4 and W9 have a direct hydrologic connection to an area of special natural resource interest (Big Muskego Lake) via a U.S. Geological Survey (USGS) waterway (portions of which are labeled on the accompanying plan set as D1 and D2).

8.3 Conclusions and Recommendations

Investigations of the wetland quality and values associated with W4, W6, W6a, W7, W9, and W12 establish that they are severely disturbed, as a direct result of adjacent historical farming, industrial operations, and dominance of invasive and low-quality species. Consequently, the overall functional value for wetlands W6, W6a, and W7 is considered to be low. The functional value of W4, W9, and W12 is considered to be moderate, primarily due to their size and increased floral diversity (W4). These wetlands or portions of these wetlands would be filled during the expansion of the VEPL. On the basis of this Practicable Alternatives Analysis and on this environmental analysis, the development of the Preferred Alternative would not result in significant adverse impacts to wetland functional values, significant adverse impacts to water quality, or other significant adverse environmental consequences.

Wetlands W6, W6a, and W7 are degraded wetlands of low functional value. Wetlands W4, W9 and W12 are considered wetlands of moderated functional value. The development of the

Preferred Alternative would include replacing these wetlands with a portion of a larger area of adjacent higher quality wetlands that would be restored and preserved in perpetuity as part of a 76-acre high-quality wetland restoration project, including 43 acres of wetland and 33 acres of upland/prairie areas. The plans for this restoration project have been approved by the WDNR, the U.S. Environmental Protection Agency (USEPA), the U.S. Fish and Wildlife Service (USFWS), the Natural Resource Conservation Service (NRCS), and the U.S. Army Corps of Engineers (USACE). Monitoring of the wetland restoration areas began in late 2000 and continues today.

Section 9

Wetland Restoration

The development of the Preferred Alternative would require the direct filling of 14.3 acres of degraded wetlands of low and moderate functional value. The wetland restoration proposed is described in the paragraphs that follow.

VEPL is in the process of developing a 76-acre high-quality restoration project, including 43 acres of wetland and 33 acres of upland/prairie areas on its property at the VEPL, immediately adjacent to the existing landfill and the Preferred Alternative development (NRC, 2008). This large restoration project, to which VEPL has committed significant time, effort, and funds, will create, restore, and enhance historical wetlands that are upstream and in the immediate vicinity of Big Muskego Lake. This project would provide an opportunity to replace the 0.7 acre for Alternative 2, the 14.3 acres for Alternative 5, and the 11.03 acres for Alternative 4 of degraded wetlands of low and moderate functional value affected by the development of the Preferred Alternative with significantly more acres of higher quality wetlands and native upland buffer.

This restoration project was specifically developed to be of the highest quality and was developed in coordination with the WDNR, the USACE, the USEPA, the USFWS, and the NRCS, in accordance with Chapter NR 350 and the WDNR guidance document (WDNR, 2007). With this project, VEPL will restore and enhance approximately 53.42 acres of historical wetlands and 24.83 acres of mesic prairie and oak savanna buffer for the express purpose of significantly improving habitat, water quality, and storm water management in the Big Muskego Lake Watershed. This project was conceived and developed to be the standard by which future proposed wetland restoration projects might be judged. The project was recently approved by the Secretary of the WDNR, the USEPA, the USFWS, the NRCS, and the USACE.

NRC completed preconstruction photo monitoring in the winter of 2004, and completed construction oversight during scrapes and berm breeches, post-construction photo monitoring, and water level monitoring in 2005. During the 2005 growing season, Agrecol, Inc., completed vegetation management (several rounds of herbicide treatment) to eradicate invasive species and provide conditions for the establishment of native species. NRC completed photo monitoring again in the fall of 2005, and Agrecol installed native seeds on the site during the winter 2005 dormant season. NRC completed a site walk-through in April and September 2006. Maintenance of this property has been on-going.

Section 10

Conclusion

In conclusion, of the five conceivable landfill expansion design alternatives analyzed for VEPL, one alternative was deemed most practicable, "... available and capable of being implemented after taking into consideration cost, available technology and logistics in light of the project purposes" [NR 103.07(2)] – the Preferred Alternative. The Preferred Alternative would provide for the most efficient, highest-value use of land resources, while maximizing the utilization of the existing landfill property – property that is industrially impacted and has been used for waste disposal purposes since 1994. It would also allow for maintaining the landfill at the location that the local community has grown to accept. The development of the Preferred Alternative would achieve the project purpose of

1. providing uninterrupted, competitive, efficient, cost-effective, and environmentally sound waste disposal, recycling, and composting services to Waukesha County and the surrounding nine counties in the VEPL service area; and
2. satisfying the public long-term need for disposal capacity within the service area.

It would do so in a manner that would provide maximum economic and environmental benefit to the people and businesses within the 10-county service area.

There are significant considerations for approving Alternative No. 5 over Alternatives 1, 2, 3, and 4:

Number of acres disturbed per cubic yards of airspace gained – The preferred Alternative No. 5 will provide 100 percent (183,000 yd³ versus 0 yd³), 34 percent (183,000 yd³ versus 101,000 yd³), 81 percent (183,000 yd³ versus 137,000 yd³) and 5 percent (183,000 yd³ versus 175,000 yd³) more airspace capacity per acre of land used than the development of Alternatives 1, 2, 3 and 4 respectively. To put this into perspective, it will take 92 acres to develop the preferred Alternate No. 5 landfill footprint to gain 15 years of waste storage capacity compared to approximately 235 acres needed to develop a greenfield landfill footprint and support facilities for an equivalent volume of airspace.

Economic impact to local economies – Alternative No. 5 will provide an estimated \$ 320 million economic benefit through services, materials, and host fees to the local economy over Alternative No. 1, \$ 241 million over Alternative No. 2, \$ 347 million over Alternative No. 3, and \$ 43 million over Alternative No. 4.

Impacts to wetlands – The preferred Alternative No. 5 will result in the direct filling of 14.3 acres for the 16,000,000 yd³ of airspace capacity and need a 92-acre footprint. Alternative No. 1 will likely require 235 acres of land for development of a greenfield landfill footprint and support facilities and potentially will disturb more wetlands to acquire this amount of property needed for development.

Alternative No. 2 will result in 0.7 acres of wetland disturbed and a 70-acre landfill footprint on VEPL's property and within 7 years will require a greenfield site and the wetlands potentially disturbed with a greenfield site to achieve an equivalent 16,000,000 yd³ landfill.

Alternative No. 3 will result in no wetland disturbed and a 44-acre landfill footprint on VEPL's property and within 4 years will require a greenfield site and the wetlands potentially disturbed with a greenfield site to achieve a total equivalent 16,000,000 yd³ landfill. Alternative No. 4 will result in 11 acres of wetland disturbed and an 87 acre landfill footprint for a 14 year landfill site with approximately 1.6 million cubic yards of less airspace capacity than Alternative No. 5 will provide.

The preferred Alternative, as contemplated, would have an adverse effect on certain, isolated low-quality wetlands. Nonetheless, because of the low functional value of the affected wetlands, the regional abundance of this type of wetland, and the significant wetland restoration project proposed by VEPL, the Expansion would improve the overall wetland habitat, water quality, and the environment in Waukesha County.

In evaluating these practicable alternatives a reasonable perspective needs to be applied. For example, the greenfield siting of a landfill is a much more difficult process than the siting of some other commercial development such as a Target store. A landfill may require anywhere between 200 and 300 acres of property for the landfill and all the facilities needed to support landfill operations. In comparison a Target store may require only 20 or 30 acres of property. This is confirmed by the fact that there are presently 76 existing Target stores in the vicinity of the 14 existing landfills shown on Figure 2. It is much easier to find a 20 or 30 acres tract of property where wetlands would not be disturbed for this type of commercial development, while nearly impossible to find 200 acres that would not require disturbing a wetland in this part of the state for the development of the landfill.

Increase in pollution with a Greenfield site versus permitting an expansion at VEPL –

Alternative No. 5 will have the lowest increase in greenhouse gases emissions of the alternatives and would have even a greater benefit in decreasing greenhouse gas emissions with the development of a landfill gas-to-energy system proposed by VEPL and MMSD. Refer to Table 4.

Comparing Alternative No. 1 to Alternative No. 5 shows that more greenhouse gases will be generated by Alternative 1, because this alternative will require the permitting of a Greenfield site at another location. Assuming a Greenfield system located 50 miles from VEPL, approximately 2,632,000 tons of additional greenhouse gases over 15 years would be contributed to the environment with additional truck traffic and continued use of natural gas as MMSD over Alternative 5.

Comparing Alternative No. 2 to Alternative No. 5 shows that more greenhouse gases will be generated over Alternative 5 because this alternative will require the permitting of a greenfield site at another location 7 years after this alternative expansion is constructed. Assuming a greenfield system located 50 miles from VEPL, approximately 2,594,000 tons of additional greenhouse gases over 15 years would be contributed to the environment with additional truck traffic over the present operation.

Comparing Alternative No. 3 to Alternative No. 5 shows that more greenhouse gases will be generated over Alternative 5, because this alternative will require the permitting of a greenfield site at another location 4 years after this alternative expansion is constructed. Assuming a greenfield system located 50 miles from VEPL, approximately 2,610,000 tons of additional greenhouse gases over 15 years would be contributed to the environment by additional truck traffic over the present operation.

Comparing Alternative No. 4 to Alternative No. 5 shows that more greenhouse gases will be generated over Alternative 5, because this alternative will require the permitting of a greenfield site at another location 14 years after this alternative expansion is constructed. Assuming a greenfield system located 50 miles from VEPL, approximately 175,400 tons of additional greenhouse gases would be contributed to the environment by additional truck traffic over a 15-year period.

Section 11

References

Natural Resources Consulting, Inc. (NRC). 2008. Wetland delineation report, Veolia Emerald Park Landfill. Prepared for Veolia Emerald Park Landfill, LLC. December 2008.

RMT, Inc (RMT). 2005. Initial site report, Veolia Emerald Park Landfill horizontal expansion. Waukesha County, WDNR License No. 3290. Prepared for Veolia Emerald Park Landfill, LLC. December 2005.

Wisconsin Department of Natural Resources (WDNR). Understanding the NR 103 decision process. February 2007.

Table 1
Alternative Summary Table
Veolia Emerald Park Landfill Expansion
Practicable Alternatives Analysis

ALTERNATIVE	APPROX. ACRES DISTURBED ON-SITE TO DEVELOP ALTERNATIVE (acres) ⁽¹⁾	APPROX. ACRES DISTURBED WITH GREENFIELD LANDFILL (15 year site)	APPROX. DESIGN CAPACITY (cubic yards)	CUBIC YARDS PER ACRE OF DISTURBED AREA	APPROX. SITE LIFE (years)	EFFECT ON WETLANDS ⁽³⁾	TECHNICALLY FEASIBLE	LOGISTICS
Alternative No. 1 "No Action" or No- Expansion alternative	0	234	16,316,300	69,700	0	Unknown impact on wetlands. Wetlands may be affected at other landfills that will necessarily need to be expanded.	N/A	Not practicable, will create regional landfill capacity crisis.
Alternative No. 2 "No direct impact to agricultural ditches and setback from 8 Mile Road" alternative	59	--	8,144,700	137,000	7	0.7 acres of wetland lost	Practicable	Practicable
Alternative No. 3 "No impacts to wetlands" alternative	44	--	4,387,800	101,000	4	No wetlands lost	Practicable	Practicable, but difficult
Alternative No. 4 "Avoid Wetland No. 12"	84	--	14,726,800	175,000	14	11.03 acres of wetland lost	Practicable	Practicable
Alternative No. 5 "Preferred option"	89	--	16,316,300	183,000	15	14.3 acres of wetland lost	Practicable	Practicable

Notes:

(1) Disturbed area = landfill site preparation area x 1.05; includes areas for roads, on-site borrow, maintenance and staging ⁽²⁾ equipment.

(2) Design capacity is total gross airspace.

(3) Direct effect occurs when wetlands are excavated or filled.

Created by: N. Braun, 7/23/09
Checked by: J. Kucher, 7/23/09

Table 2
Local Economic Impact Analysis
Veolia Emerald Park Landfill Expansion
Practicable Alternatives Analysis

ALTERNATIVE	APPROXIMATE DESIGN CAPACITY (cy)	APPROXIMATE SITE LIFE (years)	DIRECT ECONOMIC BENEFIT TO LOCAL COMMUNITY RESULTING FROM VEPL PAYROLL AND PURCHASE OF SERVICES		DIRECT ECONOMIC BENEFIT TO LOCAL COMMUNITY RESULTING FROM HOST FEES AND IN-KIND SERVICES		ESTIMATED DIRECT ECONOMIC IMPACT ON LOCAL COMMUNITY RESULTING FROM THE NEED TO TRANSPORT WASTE PREVIOUSLY DISPOSED AT VEPL TO ALTERNATIVE DISPOSAL FACILITIES		ESTIMATED DIRECT ECONOMIC IMPACT ON LOCAL COMMUNITY RESULTING FROM INCREMENTAL INCREASE OF DISPOSAL PRICING RELATED TO REDUCED COMPETITION WITHIN THE SERVICE AREA		ECONOMIC BENEFIT TO THE LOCAL COMMUNITY (9)	NET ECONOMIC BENEFIT TO LOCAL COMMUNITY WHEN COMPARED TO 16 MILLION CY, 15-YEAR LIFE VEPL ALTERNATIVE (10)	NET ECONOMIC BENEFIT TO LOCAL COMMUNITY WHEN COMPARED TO PREFERRED OPTION (11)
			\$/YEAR (1)	TOTAL \$ BENEFIT OVER LIFE OF FACILITY (2)	\$/CY (3)	TOTAL \$ BENEFIT OVER LIFE OF FACILITY (4)	\$/CY (5)	TOTAL \$ IMPACT OVER LIFE OF FACILITY (6)	\$/CY (7)	TOTAL \$ IMPACT OVER LIFE OF FACILITY (8)			
Alternative No. 1 "No Action" or No-Expansion alternative											\$0	(\$155,000,000)	(\$475,000,000)
VEPL used for disposal	0	0	\$6,550,000	\$0	\$13.61	\$0		\$0					
Greenfield landfill in or near the VEPL service area used for disposal to complete 15-year, 16 million cy life cycle	16,316,300	15	\$0.00	\$0	\$0.00	\$0	(\$4.50)	(\$73,420,000)	(\$5.00)	(\$81,580,000)			
Alternative No. 2 "No direct impact to agricultural ditches and setback from 8 Mile Road" alternative											\$156,700,000	\$79,000,000	(\$241,000,000)
VEPL used for disposal	8,144,700	7	\$6,550,000	\$45,850,000	\$13.61	\$110,850,000		\$0					
Other landfills in or near the VEPL service area used for disposal to complete 15-year, 16 million cy life cycle	8,171,600	8	\$0.00	\$0	\$0.00	\$0	(\$4.50)	(\$36,770,000)	(\$5.00)	(\$40,860,000)			
Alternative No. 3 "No impacts to wetlands" alternative											\$85,920,000	(\$27,000,000)	(\$347,000,000)
VEPL used for disposal	4,387,800	4	\$6,550,000	\$26,200,000	\$13.61	\$59,720,000		\$0					
Other landfills in or near the VEPL service area used for disposal to complete 15-year, 16 million cy life cycle	11,928,500	11	\$0.00	\$0	\$0.00	\$0	(\$4.50)	(\$53,680,000)	(\$5.00)	(\$59,640,000)			
Alternative No. 4 "No direct impact to Wetland No. 12"											\$292,130,000	\$277,000,000	(\$43,000,000)
VEPL used for disposal	14,726,800	14	\$6,550,000	\$91,700,000	\$13.61	\$200,430,000		\$0					
Other landfills in or near the VEPL service area used for disposal to complete 15-year, 16 million cy life cycle	1,573,200	1	\$0	\$0	\$0.00	\$0	(\$4.50)	(\$7,080,000)	(\$5.00)	(\$7,870,000)			
Alternative No. 5 "Preferred option"											\$320,310,000	\$320,000,000	\$0
VEPL used for disposal	16,316,300	15	\$6,550,000	\$98,250,000	\$13.61	\$222,060,000		\$0					
Other landfills in or near the VEPL service area used for disposal to complete 15-year, 16 million cy life cycle	0	0	\$0	\$0	\$0.00	\$0	(\$4.50)	\$0	(\$5.00)	\$0			

Notes:

- (1) 2008 VEPL purchase of local goods and services ~ \$6,550,000 / year.
- (2) Economic benefit / year x site life.
- (3) Local agreement provides approximately \$13.61 / CY of host fees and in-kind services (assumes no significant changes).
- (4) Economic benefit / cy x design capacity.
- (5) Cost to transport waste historically disposed of at VEPL to other facilities. Transportation cost estimated at \$4.50 / cy in 2008 dollars.
- (6) Waste transport cost / cy x design capacity.
- (7) Disposal cost, estimated at approximately \$5.00 / cy in 2008 dollars for other facilities (no hauling included). This assumption is based on competitive pricing history in the Milwaukee market.
- (8) Incremental disposal costs at other facilities x respective Alternative design capacity.
- (9) = total of (2) and (4).
- (10) = total of (2), (4), (6), and (8) for VEPL and other landfills.
- (11) = (10) - (9).
- (12) In place landfill density assumed for calculations 1,500 lbs/cy.
- (13) No inflation factors have been used.
- (1) Cost benefits to locals will move to others where site is located, Muskego will lose out.

Prepared by: Nate Braun, 7/20/09
Checked by: Jan Kucher, 7/23/09

Table 3⁽¹⁾
Significance of Wetland Functional Values
Veolia Emerald Park Landfill Expansion
Practicable Alternatives Analysis

LOCATION ⁽³⁾	ACRES REMOVED PER ALTERNATIVE					FUNCTION ⁽²⁾							
	NO. 1	NO. 2	NO. 3	NO. 4	NO. 5	FLORAL DIVERSITY	WILDLIFE HABITAT	FISHERY HABITAT	FLOOD/ STORM WATER ATTENUATION	WATER QUALITY PROTECTION	SHORELINE PROTECTION	GROUND-WATER	AESTHETICS/ RESTORATION/ EDUCATION
Wetland 4 (16.33 acres)	0	0	0	0	0	Medium	Medium	N/A	Medium	Medium	N/A	Low	Low
Wetland 6 (0.19 acres)	0	0.19	0	0.19	0.19	Low	Low	N/A	Low	Medium	N/A	Low	Low
Wetland 6a (0.16 acres)	0	0.16	0	0.16	0.16	Low	Low	N/A	Low	Medium	N/A	Low	Low
Wetland 7 (0.21 acres)	0	0.21	0	0.21	0.21	Low	Low	N/A	Low	Medium	N/A	Low	Low
Wetland 9; includes D2 (37.37 acres)	0	0	0	11.03	10.47	Low	Medium	N/A	Medium	Medium	N/A	Low	Low
Wetland 12 (3.67 acres)	0	0	0	2.71	0	Low	Medium	N/A	Medium	Medium	N/A	Low	Low

Notes:

⁽¹⁾ Wetland functional values assessment is according to the Wisconsin Department of Natural Resources Rapid Assessment Methodology for Evaluating Wetland Functional Values, November 1992.

⁽²⁾ Shoreline function is not applicable for all wetlands, both existing and proposed.

⁽³⁾ See Figure 1.

N/A = not applicable.

Prepared by: J. Kucher, 7/20/09

Checked by: N. Braun, 7/21/09

Table 4
Greenhouse Gas Emission Summaries
Veolia Emerald Park Landfill Expansion
Practicable Alternatives Analysis

Alternative 1 – No-Action or No Expansion - Greenfield Site

Assumptions:

- Existing site capacity will be reached in 2014.
- Waste will need to be trucked to other locations (over the road semis) at greater distances.
- 45 cubic yards per semi.
- The amount of LFG generated by existing landfill will be insufficient for off-site use at MMSD.
- MMSD will continue to use natural gas for combustion instead of LFG.
- Nothing to VEPL, 16.3 million cubic yards to greenfield landfill.
- 15-year period.
- CO₂-e is the carbon dioxide greenhouse equivalent.

	Alternative 1 - Summary Table			
	15-Year Greenhouse Gas Emissions (Tons)			
	CO ₂	Methane	N ₂ O	CO ₂ -e
Truck Traffic (100 miles round trip)	81,054	0.204	0.192	81,118
Greenfield and EPL LFG Flare	2,539,393	98	34	2,552,097
LFG Fugitive (EPL and Greenfield)	230,671	84,071	0	1,996,164
MMSD (Turbine - nat gas)	1,084,050	84.75	29,565	1,094,995
MMSD (Turbine - LFG)	0	0.00	0.000	0
Total:	3,935,169	84,254	64.07	5,724,374
(100 miles round trip)				From Fossil Fuel and LFG Emissions
Total:	1,165,104	84.957	29.757	1,176,113
(100 miles round trip)				From Fossil Fuel Combustion Only (NG/Trucks)

195,400 cars added over the life of the project*
 *Based on USEPA estimates of CO₂-e per vehicle per year.

Alternative 2 – No Direct Impact to Agricultural Ditches and Setback From 8-Mile Road

Assumptions:

- Existing site capacity will be reached in 2020 (inclusive).
- Waste will need to be trucked to other locations (semis) at greater distances starting in 2021.
- 45 cubic yards per semi.
- The amount of LFG generated by existing landfill will be insufficient for off-site use at MMSD.
- MMSD will use natural gas for combustion instead of LFG.
- 8.1 million cubic yards to VEPL, 8.2 million cubic yards to greenfield landfill.
- 7 years EPL, 8 years greenfield landfill.
- CO₂-e is the carbon dioxide greenhouse equivalent.

	Alternative 2 - Summary Table			
	15-Year Greenhouse Gas Emissions (Tons)			
	CO ₂	Methane	N ₂ O	CO ₂ -e
Truck Traffic (100 miles round trip)	40,776	0.102	0.096	40,808
Greenfield and EPL LFG Flare	2,539,393	98	34	2,552,097
LFG Fugitive (EPL and Greenfield)	230,671	84,071	0	1,996,164
MMSD (Turbine - nat gas)	1,084,050	84.75	29,565	1,094,995
MMSD (Turbine - LFG)	0	0.00	0.000	0
Total:	3,894,890	84,254	63.98	5,684,064
(100 miles round trip)				From Fossil Fuel and LFG Emissions
Total:	1,124,826	84.855	29.661	1,135,803
(100 miles round trip)				From Fossil Fuel Combustion Only (NG/Trucks)

188,700 cars added over the life of the project*
 *Based on USEPA estimates of CO₂-e per vehicle per year.

Table 4 (continued)
Greenhouse Gas Emission Summaries
Veolia Emerald Park Landfill Expansion
Practicable Alternatives Analysis

Alternative 3 – No Impacts to Wetlands

Assumptions:

- Existing site capacity will be reached in 2017 (inclusive).
- Waste will need to be trucked to other locations at greater distances starting in 2018.
- 45 cubic yards per semi.
- The amount of LFG generated by existing landfill will be insufficient for off-site use at MMSD.
- MMSD will use natural gas for combustion instead of LFG.
- 4.3 million cubic yards to VEPL, 12 million cubic yards to greenfield landfill.
- 4 years EPL, 11 years greenfield landfill.
- CO₂-e is the carbon dioxide greenhouse equivalent.

Alternative 3 - Summary Table				
	15-Year Greenhouse Gas Emissions (Tons)			
	CO ₂	Methane	N ₂ O	CO ₂ -e
Truck Traffic (100 miles round trip)	59,440	0.149	0.141	59,486
Greenfield and EPL LFG Flare	2,539,393	98	34	2,552,097
LFG Fugitive (EPL and Greenfield)	230,671	84,071	0	1,996,164
MMSD (Turbine - nat gas)	1,084,050	84.75	29.565	1,094,995
MMSD (Turbine - LFG)	0	0.00	0.000	0
(100 miles round trip) Total:	3,913,554	84,254	64.02	5,702,743
From Fossil Fuel and LFG Emissions				
(100 miles round trip) Total:	1,143,490	84,902	29.706	1,154,481
From Fossil Fuel Combustion Only (NG/Trucks)				

191,800 cars added over the life of the project*

*Based on USEPA estimates of CO₂-e per vehicle per year.

Alternative 4 – Avoid Wetland No. 12

Assumptions:

- Existing site capacity will be reached in 2028 (inclusive).
- No additional extended travel routes needed.
- The amount of LFG generated by existing landfill will be sufficient for off-site use at MMSD.
- MMSD will continue to use up to 5,000 cfm of LFG to replace equivalent Btu of natural gas at the MMSD.
- 14.7 million cubic yards to VEPL, 1.6 million cubic yards to greenfield landfill.
- 14 years EPL, 1 year greenfield landfill.
- CO₂-e is the carbon dioxide greenhouse equivalent.

Alternative 4 - Summary Table				
	15-Year Greenhouse Gas Emissions (Tons)			
	CO ₂	Methane	N ₂ O	CO ₂ -e
Truck Traffic (100 miles round trip)	7,956	0.020	0.019	7,962
Greenfield LFG Flare	432,227	17	6	434,390
LFG Fugitive (EPL and Greenfield)	230,671	84,071	0	1,996,164
MMSD (Turbine - nat gas)	119,545	9.35	3.260	120,752
MMSD (Turbine - LFG)	1,946,546	75.41	26.305	1,956,284
(100 miles round trip) Total:	2,736,946	84,173	35.425	4,515,552
From Fossil Fuel and LFG Emissions				
(100 miles round trip) Total:	127,502	9.366	3.279	128,715
From Fossil Fuel Combustion Only (NG/Trucks)				

21,385 cars added over the life of the project*

*Based on USEPA estimates of CO₂-e per vehicle per year.

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Table 4 (continued)
Greenhouse Gas Emission Summaries
Veolia Emerald Park Landfill Expansion
Practicable Alternatives Analysis

Alternative 5 – Preferred Alternative

Assumptions:

- Existing site capacity will be reached in 2027.
- Waste will need to be trucked to other locations at greater distances starting in 2028.
- 45 cubic yards per semi.
- The amount of LFG generated by existing landfill will be sufficient for off-site use at MMSD.
- MMSD will continue to use up to 5,000 cfm of LFG to replace equivalent BTU of natural gas at the MMSD.
- 16.3 million cubic yards to VEPL, nothing to greenfield landfill.
- 15 year period
- CO₂-e is the carbon dioxide greenhouse equivalent.

	Alternative 5 - Summary Table				
	15-Year Greenhouse Gas Emissions (Tons)				
	CO ₂	Methane	N ₂ O	CO ₂ -e	
					From Truck Emissions Only
Truck Traffic (100 miles round trip)	0	0.000	0.000	0	
Greenfield and EPL LFG Flare	0	0	0	0	
LFG Fugitive (EPL and Greenfield)	230,671	84,071	0	1,996,164	
MMSD (Turbine - nat gas)	47,275	3.70	1.289	47,753	
MMSD (Turbine - LFG)	2,092,400	81.06	28,276	2,102,867	
(100 miles round trip) Total:	2,370,346	84,156	29.57	4,146,784	From Fossil Fuel and LFG Emissions
(100 miles round trip) Total:	47,275	3.6%	1.289	47,753	From Fossil Fuel Combustion Only (NG/Trucks)

7,900 cars added over the life of the project*

*Based on USEPA estimates of CO₂-e per vehicle per year.

Prepared by: B. Lemley, 7/17/2009 Revised: J. Kucher 11/24/09
Checked by: Dave Bittrick, 7/17/2009 Checked: B. Lemley 11/24/09

Table 5

Tax Benefits to Local Communities
Veolia Emerald Park Landfill Expansion
Practicable Alternatives Analysis

TAX KEY NUMBER	SEC	ACRES	LAND (\$)	IMPROVEMENTS (\$)	TOTAL (\$)	PROPERTY TAX (\$)	PROPERTY TAX PER ACRE (\$)	AVERAGE ASSESSMENT RATIO	NET ASSESSED VALUE RATE	LOCALITY
2303998	Expansion	40.00	140,000	106,800	246,800	3,823.88	95.60	0.9946	0.015650200	Muskego
2302999	Wetland Mitigation	40.00	112,900	81,400	194,300	3,002.24	75.06	0.9946	0.015650200	Muskego
2304998	Expansion	76.00	225,000		225,000	3,521.30	46.33	0.9946	0.015650200	Muskego
2304998-001	Buffer	37.00	108,100		108,100	1,691.80	45.72	0.9946	0.015650200	Muskego
2303997	Buffer	40.00	13,900		13,900	217.53	5.44	0.9946	0.015650200	Muskego
2260992	Not Contiguous to LF	3.30	700		700	10.97	3.32	0.9946	0.015650200	Muskego
2302997	Wetland Mitigation	20.00	3,600		3,600	56.34	2.82	0.9946	0.015650200	Muskego
2302996	Wetland Mitigation	20.00	3,700		3,700	57.90	2.90	0.9946	0.015650200	Muskego
2303999	Expansion	40.00	99,200	70,700	169,900	2,620.39	65.51	0.9946	0.015650200	Muskego
2257975	Not Contiguous to LF	1.00	76,900		76,900	1,203.51	1,203.51	0.9946	0.015650200	Muskego
2264998-001	Not Contiguous to LF	1.65	98,800	137,800	236,600	3,664.25	2,220.76	0.9946	0.015650200	Muskego
2301997	Buffer	0.50	2,700	-	2,700	42.25	84.50	0.9946	0.015650200	Muskego
2304997	Buffer	40.00	120,000		120,000	1,878.02	46.95	0.9946	0.015650200	Muskego
2301998	Expansion	130.00	484,500	560,400	1,044,900	16,314.32	125.49	0.9946	0.015650200	Muskego
2304999	Buffer	2.08	5,400	-	5,400	84.50	40.63	0.9946	0.015650200	Muskego
229898103	35	0.92	88,400	136,800	225,200	3,485.83	3,788.95	0.9946	0.015650200	Muskego
012042118011000		68.71	138,800	42,100	180,900	3,143.21	45.75	0.8692	0.017063170	Raymond
012042118015000		39.50	6,800	-	6,800	116.03	2.94	0.8692	0.017063170	Raymond
010042001031000		0.72	55,000	129,500	184,500	3,221.00	4,473.61	0.8692	0.017063170	Norway
Total		601.38	1,784,400	1,265,500	3,049,900	48,155.27				

Notes:

1. The amount to report for "Total Personal Property Assessed Value" is the amounts from the personal property tax returns filed with the respective municipality. This includes all of the operating equipment and office property.
2. Provided by VEPI.

Table 6

Alternative Cost Summary Table
Veolia Emerald Park Landfill Expansion
Practicable Alternatives Analysis

	Alternative No. 1 "No Action" or No-Expansion Alternative	Alternative No. 2 "No Direct Impact to Agricultural Ditches and Setback from 8 Mile Road" Alternative	Alternative No. 3 "No Impacts to Wetlands" Alternative	Alternative No. 4 "Preferred Option"	Alternative No. 5 "Avoid Wetland No. 12"
Alternative Site Life (n) ⁽¹⁾	0	7	4	15	14
Total Alternative Cost (\$) ⁽²⁾	\$85,617,400	\$29,510,800	\$20,605,200	\$52,834,100	\$50,136,900
Prorated Greenfield Costs ⁽³⁾					
A (full)	--	\$1,256,000	\$1,256,000	--	\$1,256,000
B (15-n)/15	--	\$2,920,320	\$4,015,440	--	\$365,040
C (full)	--	\$1,740,000	\$1,740,000	--	\$1,740,000
D (15-n)/15	--	\$36,993,062	\$50,865,461	--	\$4,624,133
Total cost (15-yr, 16 million cy site)	\$85,617,400	\$76,711,121	\$84,269,791	\$52,834,100	\$58,920,590
Total Cost/cy	\$5.35	\$4.79	\$5.27	\$3.30	\$3.68

Notes:

- (1) Site life for alternative.
 (2) Capital cost (refer to Attachment A).
 (3) Prorated Alternative 1 greenfield costs to provide waste disposal for comparable 15 year site. Refer to letters A - D for specific construction costs in Attachment A.

By: Nate Braun, 7-22-09

Check: Jan Kucher, 7-23-09

Table 7
Truck Injury and Fatality Summary
Veolia Emerald Park Landfill Expansion
Practicable Alternatives Analysis

ALTERNATIVE NO.	SEMI LOAD (cy)	GREENFIELD YEARS	WASTE TO GREENFIELD (cy)	NUMBER OF TRUCK TRIPS PER YEAR	ANNUAL TOTAL TRUCK MILES TRAVELED	YEARLY FATALITIES CAUSED	POTENTIAL YEARLY INJURIES CAUSED	POTENTIAL TOTAL FATALITIES CAUSED	POTENTIAL TOTAL INJURIES CAUSED
1	45	15	16,300,000	24,148	2,414,815	0.0541	1.148	0.811	17.22
2	45	8	8,155,300	22,654	2,265,361	0.0507	1.077	0.406	8.61
3	45	11	11,900,000	24,040	2,404,040	0.0538	1.143	0.592	12.57
4	45	0	0	0	0	0	0	0	0
5	45	1	1,574,200	34,982	3,498,222	0.0783	1.663	0.078	1.66

Note:

Data from NHTSA's National Center for Statistics and Analysis. "Traffic Safety Facts, 2006 Data: Large Trucks."

Prepared by: B. Zimmerman, 7/27/09

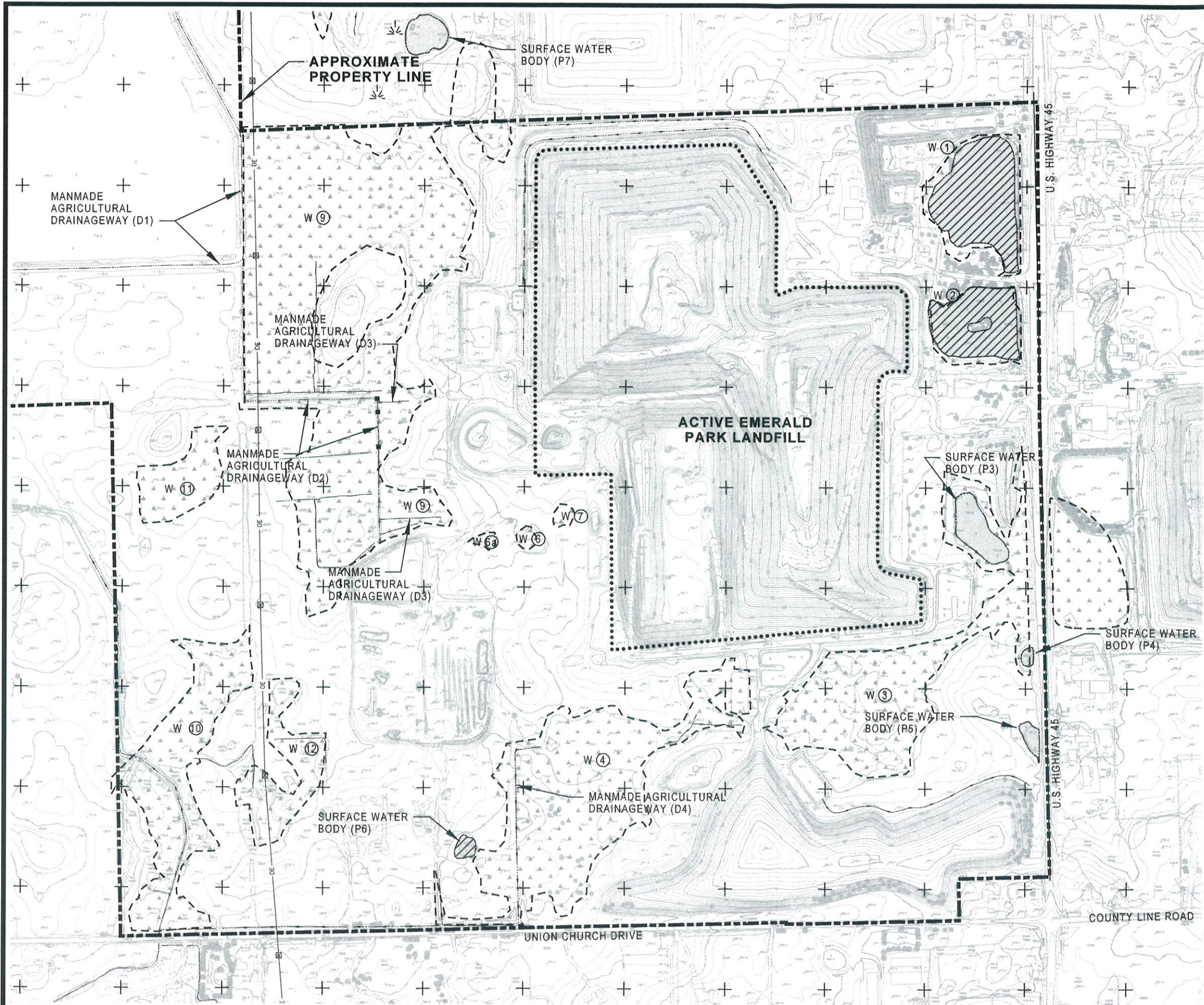
Checked by: J. Kucher, 7/27/09

Levels
(1) 7
(2) 3
(3) 12,13,20,23,43

Logical Names
(1) pro
(2) bdr
(3) bmc
(4) bmr

Reference Files
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Ref. File 2 = J:\20655\25\1x17bdr.dgn
Ref. File 3 = J:\20655\25\bmc041408.dgn
Ref. File 4 = J:\20655\25\bmrml.dgn

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Plot File = J:\20655\25\site.prf
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Levels On = 5-7

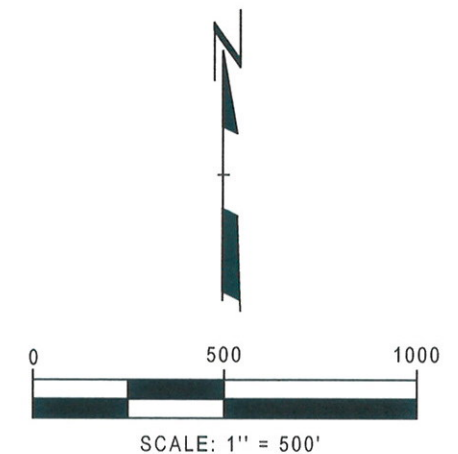


LEGEND

- PROPERTY LINE
- WETLAND
- W ⑦ DELINEATED WETLAND
- P2 LOCATION OF POND
- D2 LOCATION OF DITCH

NOTES

1. WETLAND LIMITS SUPPLIED BY NATURAL RESOURCES CONSULTING, INC. - DELINEATIONS REVISED NOVEMBER 29, 2005.
2. TOPOGRAPHIC BASE MAP WAS COMPILED FROM THE FOLLOWING SOURCE: KBM, INC., GRAND FORKS, NORTH DAKOTA. DATE OF AERIAL PHOTOGRAPHY IS APRIL 14, 2008. TOPOGRAPHIC INTERVAL IS TWO FEET.



PROJECT: **VEOLIA ES EMERALD PARK LANDFILL PRACTICABLE ALTERNATIVES ANALYSIS MUSKEGO, WISCONSIN**

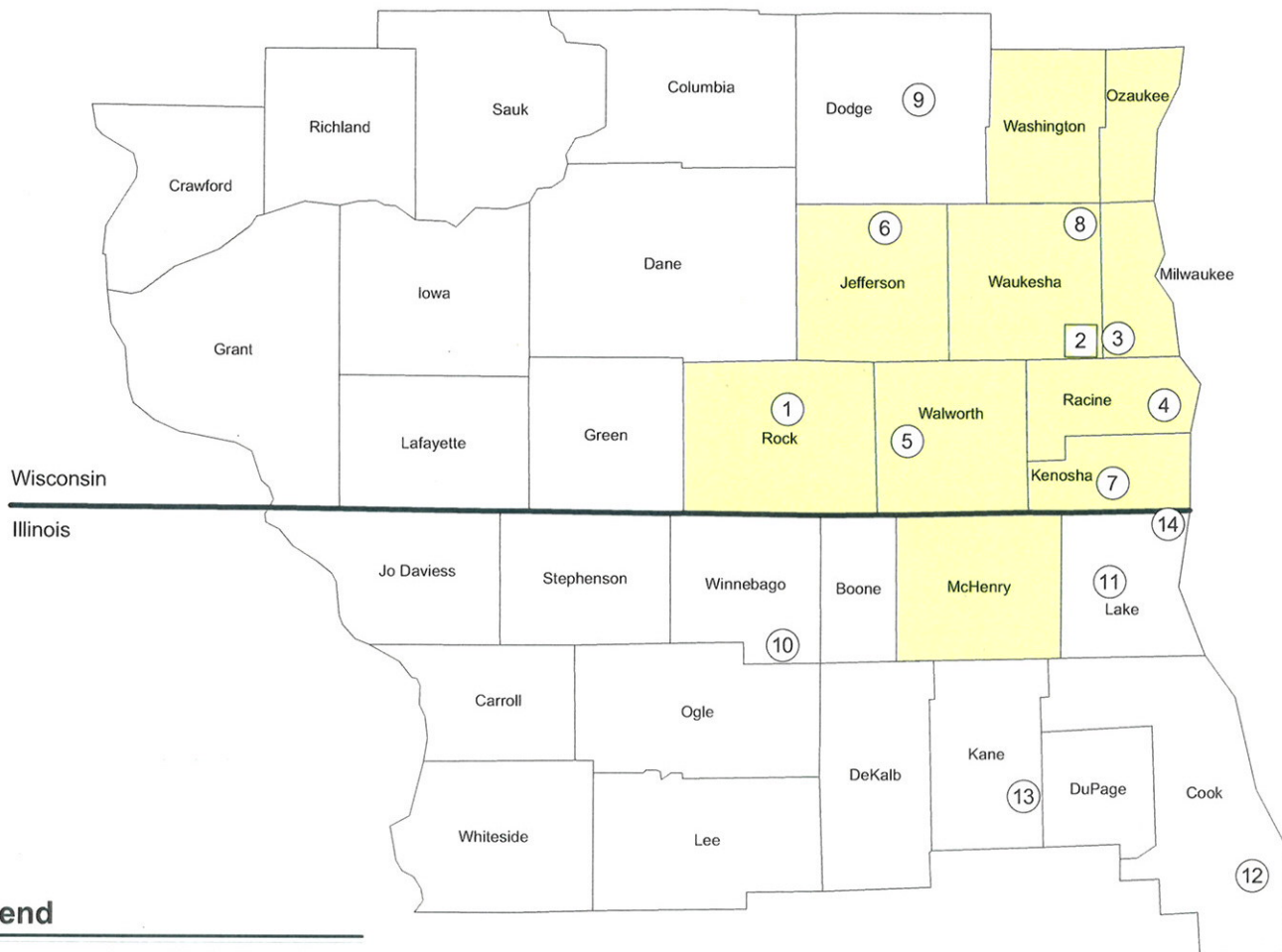
SHEET TITLE: **SITE MAP**

DRAWN BY: noldenr	SCALE: 1" = 500'	PROJ. NO. 20655.25
CHECKED BY: JCK	DATE PRINTED:	FILE NO. SITE.PLT
APPROVED BY: DM		
DATE: JANUARY 2009		

FIGURE 1

RMT

744 Heartland Trail
Madison, WI 53717-1934
P.O. Box 8923 53708-8923
Phone: 608-831-4444
Fax: 608-831-3334



Legend

Approximate Veolia Emerald Park Landfill Present Service Area

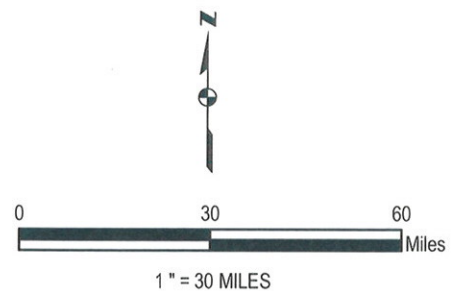
Landfills

Wisconsin

- ① City of Janesville Landfill
- ② Veolia Emerald Park Landfill
- ③ WMWI Metro RDF
- ④ Republic Kestrel Hawk RDF
- ⑤ Republic Mallard Ridge RDF
- ⑥ WMWI Deer Track Park RDF
- ⑦ WMWI Pheasant Run RDF
- ⑧ WMWI Orchard Ridge
- ⑨ Veolia Glacier Ridge

Illinois

- ⑩ Winnebago Reclamation Service
- ⑪ WMIL Countryside Landfill
- ⑫ River Bend Prairie Landfill
- ⑬ WMIL Settler's Hill RDF
- ⑭ Veolia Zion Landfill



RMT

744 Heartland Trail
Madison, WI 53717-1934
P.O. Box 8923 53708-8923
Phone: 608-831-4444
Fax: 608-831-3334

VEOLIA EMERALD PARK LANDFILL PRACTICABLE ALTERNATIVES ANALYSIS WAUKESHA COUNTY, WISCONSIN

LANDFILL FACILITIES WITHIN AND NEAR THE EXISTING VEPL SERVICE AREA

DRAWN BY:	METZA
APPROVED BY:	MARSHALL D
PROJECT NO:	20655.25
FILE NO.	206552520.mxd
DATE:	JANUARY 2009

Levels

- (1) 12,13,20,23,43
- (2) 7,12
- (3) 12,13,20,23,43
- (4) 7,12

Logical Names

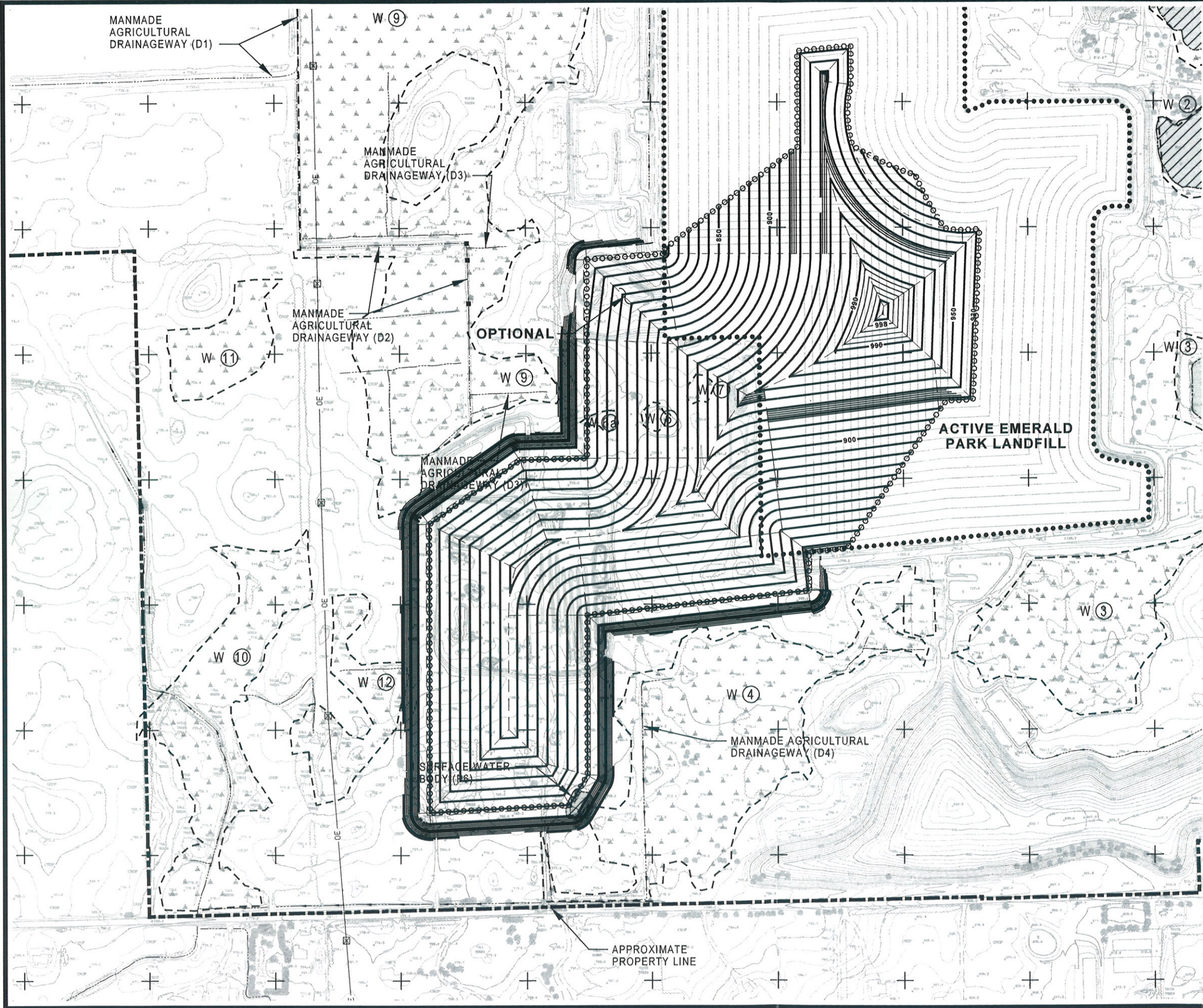
- (1) bdr
- (2) bmc
- (3) bmr
- (4) pro

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- Ref. File 3 = J:\20655\25\11x17bmr.dgn
- Ref. File 4 = J:\20655\25\11x17pro.dgn

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- Levels On = 5-7



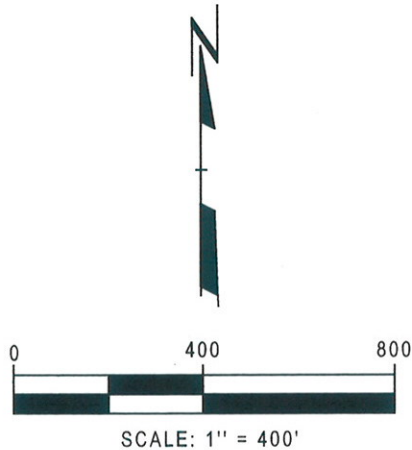
LEGEND

- PROPERTY LINE
- WETLAND
- LIMITS OF WASTE
- W 7 DELINEATED WETLAND
- P2 LOCATION OF POND
- D2 LOCATION OF DITCH

NOTES

- WETLAND LIMITS SUPPLIED BY NATURAL RESOURCES CONSULTING, INC. - DELINEATIONS REVISED NOVEMBER 29, 2005.
- TOPOGRAPHIC BASE MAP WAS COMPILED FROM THE FOLLOWING SOURCE: KBM, INC., GRAND FORKS, NORTH DAKOTA. DATE OF AERIAL PHOTOGRAPHY IS APRIL 14, 2008. TOPOGRAPHIC INTERVAL IS TWO FEET.

- SITE VOLUME : 8,144,700 CU YD
- AREA OF HORIZ. AND VERT. EXPANSION : 70.15 AC
- AREA OF WETLANDS LOST : 0.7 AC



PROJECT: **VEOLIA ES EMERALD PARK LANDFILL
PRACTICABLE ALTERNATIVES ANALYSIS
MUSKEGO, WISCONSIN**

SHEET TITLE: **PROPOSED LIMITS OF EXPANSION
ALTERNATIVE #2**

DRAWN BY: noldenr	SCALE: 1" = 400'	PROJ. NO. 20655.25
CHECKED BY: JCK	DATE PRINTED:	FILE NO. ALT NO.2.PLT
APPROVED BY: DM		
DATE: JANUARY 2009		

FIGURE 3

RMT

744 Heartland Trail
Madison, WI 53717-1934
P.O. Box 8923 53708-8923
Phone: 608-831-4444
Fax: 608-831-3334

Levels

- (1) 12.13.20.23.43
(2) 7.12

Logical Names

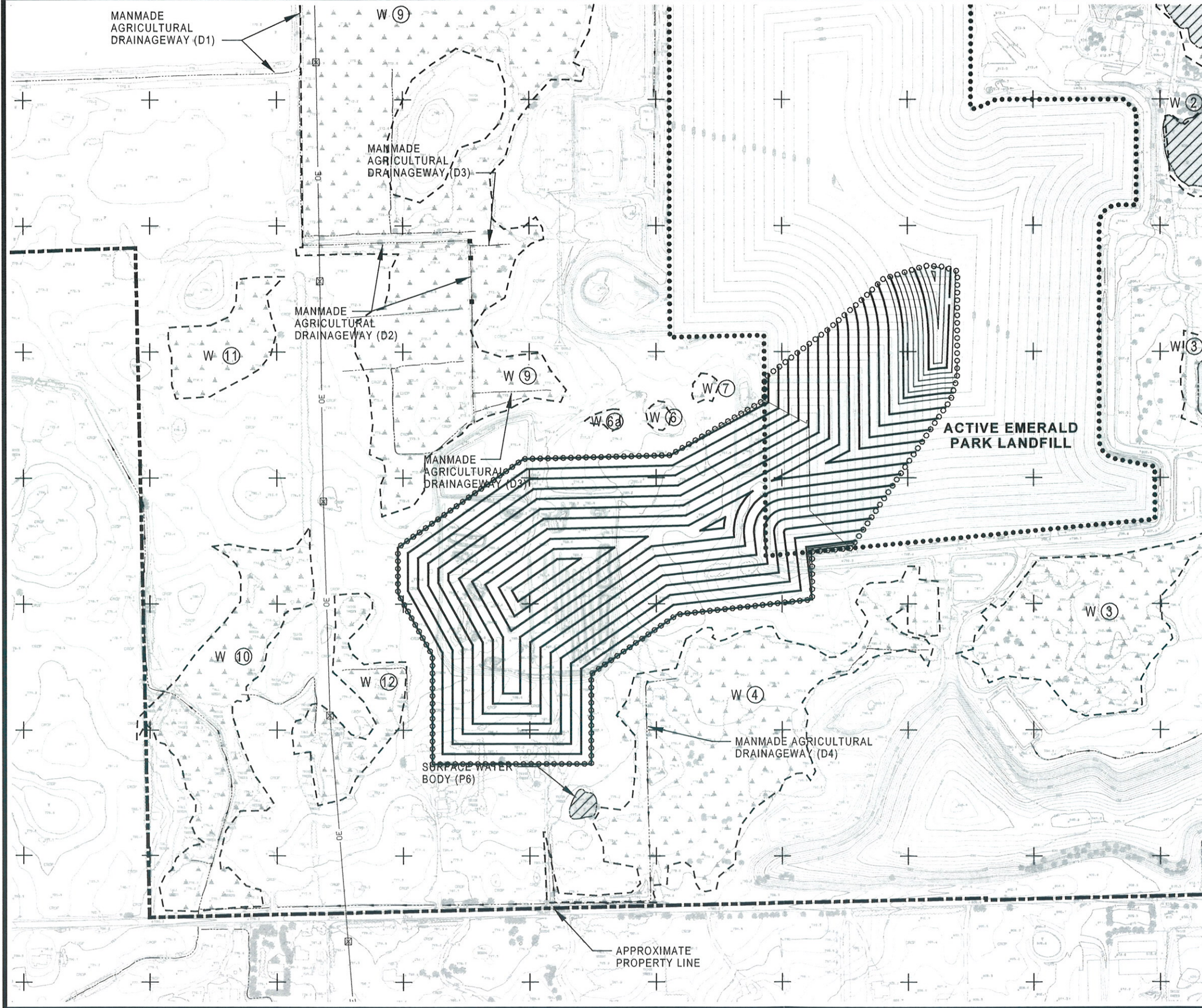
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(3) bmr
(4) pro

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Ref. File 4 = J:\20655\25\11x17pro.dgn

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Levels On = 5-7



LEGEND

- PROPERTY LINE
----- WETLAND
oooooooooooooo LIMITS OF WASTE
W ⑦ DELINEATED WETLAND
P2 LOCATION OF POND
D2 LOCATION OF DITCH

NOTES

1. WETLAND LIMITS SUPPLIED BY NATURAL RESOURCES CONSULTING, INC. - DELINEATIONS REVISED NOVEMBER 29, 2005.
2. TOPOGRAPHIC BASE MAP WAS COMPILED FROM THE FOLLOWING SOURCE: KBM, INC., GRAND FORKS, NORTH DAKOTA. DATE OF AERIAL PHOTOGRAPHY IS APRIL 14, 2008. TOPOGRAPHIC INTERVAL IS TWO FEET.

- SITE VOLUME : 4,387,800 CU YD
- AREA OF HORIZ. AND VERT. EXPANSION : 43.77 AC
- AREA OF WETLANDS LOST : 0.0 AC

PROJECT: **VEOLIA ES EMERALD PARK LANDFILL
PRACTICABLE ALTERNATIVES ANALYSIS
MUSKEGO, WISCONSIN**

SHEET TITLE: **PROPOSED LIMITS OF EXPANSION
ALTERNATIVE #3**

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CHECKED BY: JCK	FILE NO. ALT NO.3.PLT	
APPROVED BY: DM	DATE PRINTED:	
DATE: JANUARY 2009		

FIGURE 4

RMT

744 Heartland Trail
Madison, WI 53717-1934

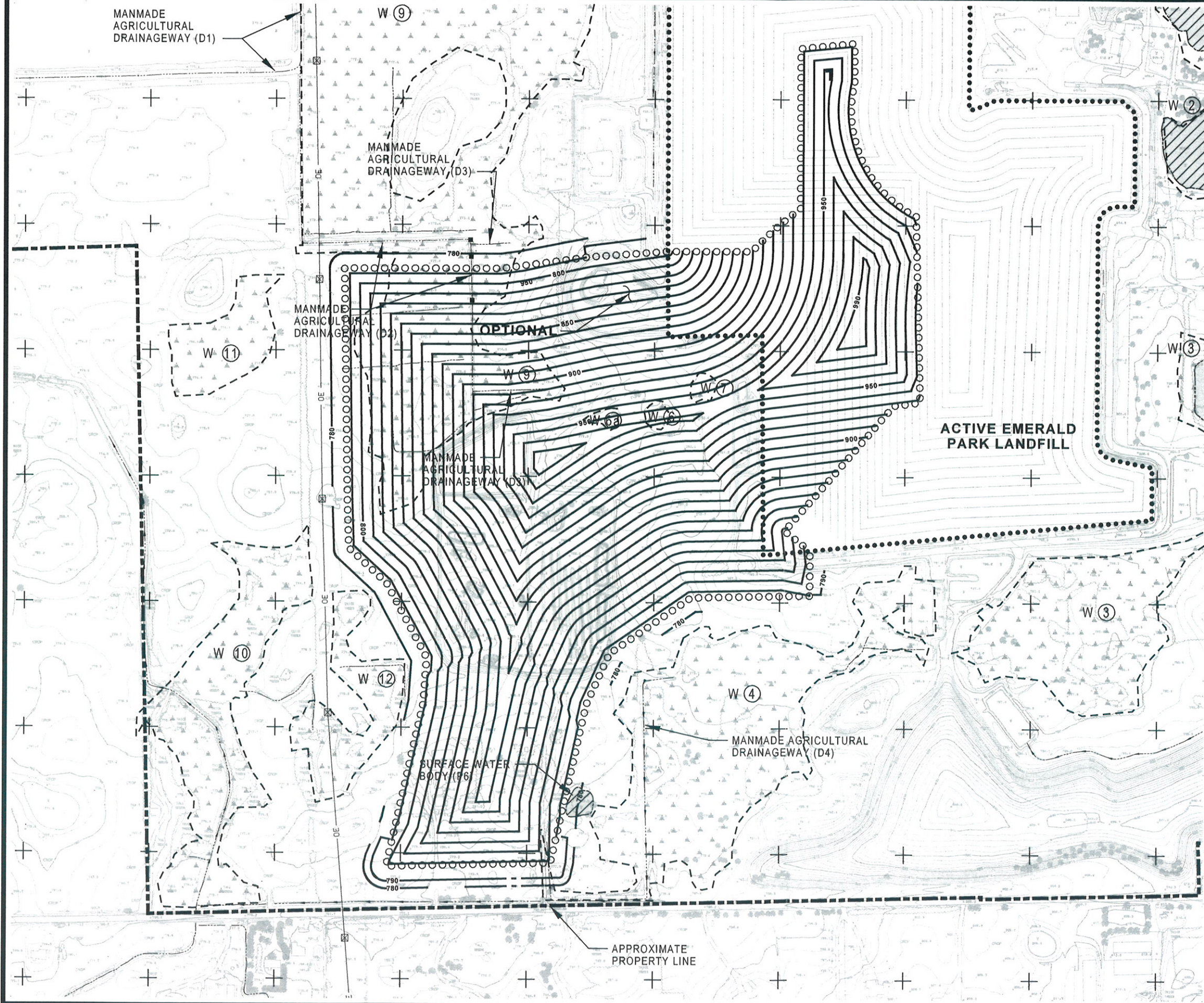
P.O. Box 8923 53708-8923
Phone: 608-831-4444
Fax: 608-831-3334

Levels
(1) 12,13,20,23,43
(2) 7,12
(3) 7,12
(4) 7,12

Logical Names
(1) bdr
(2) bmc
(3) bmr
(4) pro

Reference Files
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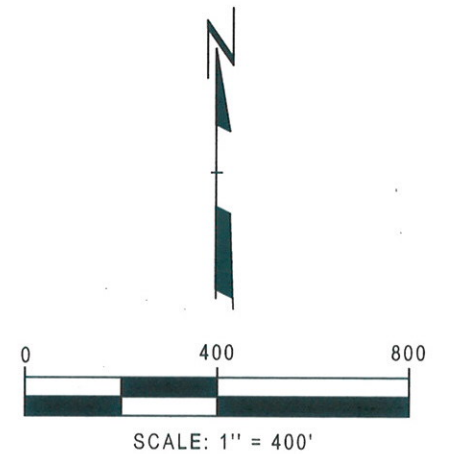
LEGEND

- PROPERTY LINE
- - - - - WETLAND
- ooooooooooooo LIMITS OF WASTE
- W ⑦ DELINEATED WETLAND
- P2 LOCATION OF POND
- D2 LOCATION OF DITCH

NOTES

1. WETLAND LIMITS SUPPLIED BY NATURAL RESOURCES CONSULTING, INC. - DELINEATIONS REVISED NOVEMBER 29, 2005.
2. TOPOGRAPHIC BASE MAP WAS COMPILED FROM THE FOLLOWING SOURCE: KBM, INC., GRAND FORKS, NORTH DAKOTA. DATE OF AERIAL PHOTOGRAPHY IS APRIL 14, 2008. TOPOGRAPHIC INTERVAL IS TWO FEET.

- SITE VOLUME : 14,726,800 CU YD
- AREA OF HORIZ. AND VERT. EXPANSION : 86.81 AC
- AREA OF WETLANDS LOST : 11.03 AC



PROJECT: **VEOLIA ES EMERALD PARK LANDFILL
PRACTICABLE ALTERNATIVES ANALYSIS
MUSKEGO, WISCONSIN**

SHEET TITLE: **PROPOSED LIMITS OF EXPANSION
ALTERNATIVE #4**

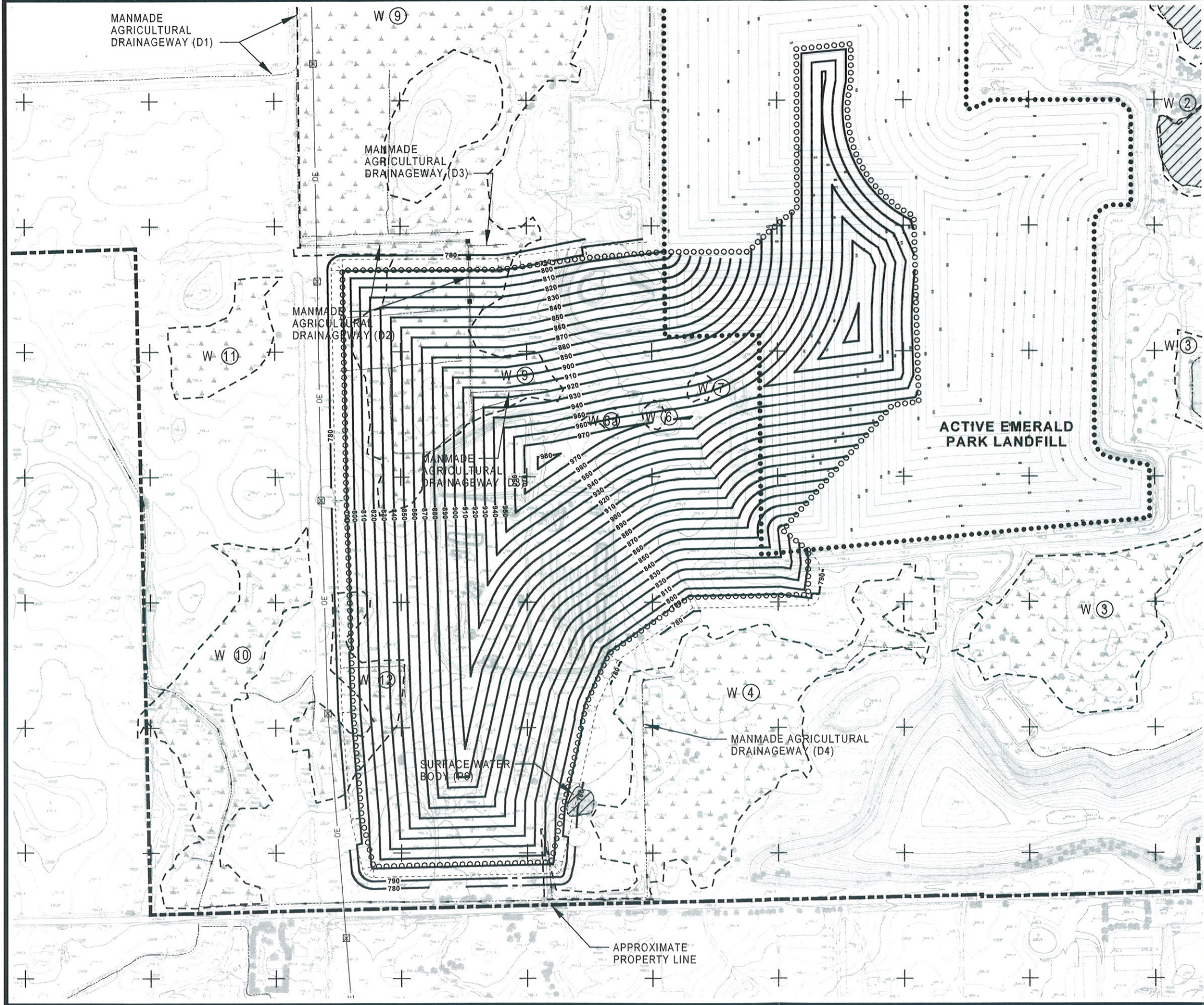
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APPROVED BY: DM	DATE PRINTED:	
DATE: MAY 2009		

FIGURE 5

RMT

744 Heartland Trail
Madison, WI 53717-1934
P.O. Box 8923 53708-8923
Phone: 608-831-4444
Fax: 608-831-3334

Plot Data
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 Ref. File 2: J:\20655\25\bmcc041408.dgn
 Ref. File 3: J:\20655\25\bmrmtd.dgn
 Ref. File 4: J:\20655\25\proposed.dgn
 Logical Names
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 (2) bmc
 (3) bmr
 (4) pro
 Levels
 (1)
 (2)
 (3) 12,13,20,23,43
 (4) 7,12



LEGEND

	PROPERTY LINE
	WETLAND
	LIMITS OF WASTE
	DELINEATED WETLAND
	LOCATION OF POND
	LOCATION OF DITCH

- NOTES**
1. WETLAND LIMITS SUPPLIED BY NATURAL RESOURCES CONSULTING, INC. - DELINEATIONS REVISED NOVEMBER 29, 2005.
 2. TOPOGRAPHIC BASE MAP WAS COMPILED FROM THE FOLLOWING SOURCE: KBM, INC., GRAND FORKS, NORTH DAKOTA. DATE OF AERIAL PHOTOGRAPHY IS APRIL 14, 2008. TOPOGRAPHIC INTERVAL IS TWO FEET.
- SITE VOLUME : 16,316,300 CU YD
 - AREA OF HORIZ. AND VERT. EXPANSION : 92.31 AC
 - AREA OF WETLANDS LOST : 14.28 AC

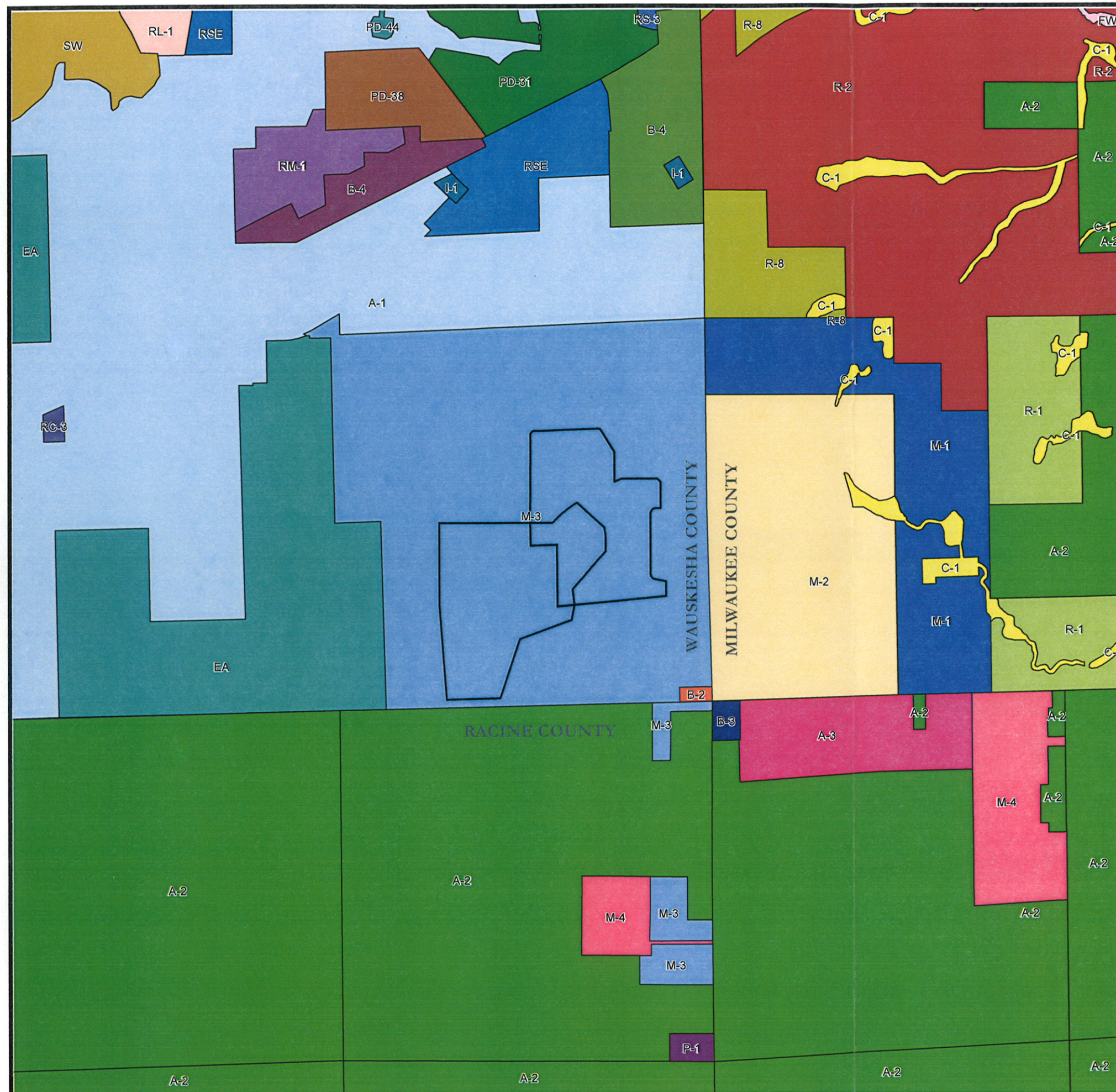
PROJECT: **VEOLIA ES EMERALD PARK LANDFILL PRACTICABLE ALTERNATIVES ANALYSIS MUSKEGO, WISCONSIN**

SHEET TITLE: **PROPOSED LIMITS OF EXPANSION ALTERNATIVE #5**

DRAWN BY: NOLDENR	SCALE: 1" = 400'	PROJ. NO. 20655.25
CHECKED BY: JCK	DATE PRINTED:	FILE NO. ALT NO.5_111809.PLT
APPROVED BY: DM	FIGURE 6	
DATE: JANUARY 2009		

744 Heartland Trail
 Madison, WI 53717-1934
 P.O. Box 8923 53708-8923
 Phone: 608-831-4444
 Fax: 608-831-3334

RMT



LEGEND

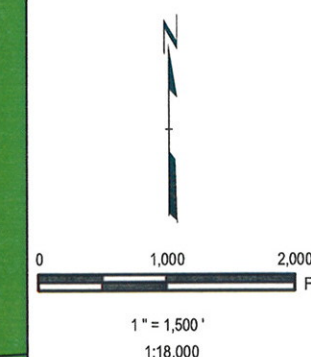
LANDFILL AREA

- A-1 - Agricultural District
- A-2 - Prime Agricultural District
- A-3 - Agriculture 3 District
- B-2 - Local Service Center
- B-3 - Community Business District
- B-4 - Highway Business District
- B-4 - South 27th Street Business District
- C-1 - Conservancy District
- EA - Exclusive Agricultural District
- FW - Floodway District
- I-1 - Government and Institutional District
- M-1 - Limited Industrial District
- M-2 - General Industrial District
- M-3 - Landfill and Extractive Operations District

- M-4 - Quarrying District
- P-1 - Park District
- PD-31 - Champions Village Planned Development District
- PD-38 - Stonebridge Planned Development District
- PD-44 - St. Andrew's Village Planned Development District
- R-1 - Countryside/Estate Single-Family Residence District*
- R-2 - Estate Single-Family Residence District
- R-3 - Suburban/Estate Single-Family Residence District
- R-8 - Multiple-Family Residence District
- RC-3 - Rural Country Estate District
- RL-1 - Lakeshore Residence District
- RM-1 - Multiple Family Residential
- RS-3 - Suburban Residence District
- RSE - Suburban Estate District
- SW - Shoreland Wetland District

NOTES

1. ZONING DATA RECEIVED FROM THE TOWN OF FRANKLIN, TOWN OF MUSKEGO, AND RACINE COUNTY.



PROJECT: VEOLIA ES EMERALD PARK LANDFILL, LLC			
PRACTICABLE ALTERNATIVES ANALYSIS			
MUSKEGO, WISCONSIN			
SHEET TITLE:			
LOCAL ZONING			
DRAWN BY:	PAPEZ J	SCALE:	PROJ. NO.
CHECKED BY:	KUCHER J	AS NOTED	00-20655.25
APPROVED BY:	MARSHALL D	DATE PRINTED:	FILE NO.
DATE:	JANUARY 2009		206552519.mxd
FIGURE 7			
744 Heartland Trail Madison, WI 53717-1934			
P.O. Box 8923 53708-8923 Phone: 608-831-4444 Fax: 608-831-3334			

Attachment 1

Cost Estimates

Alternative No. 1 Cost Breakdown
Practicable Alternatives Analysis
Veolia Emerald Park Landfill

Alternative No. 1 - "No action" or No Expansion - New Greenfield Facility

Total Alternative No. 1 Air Space = 16,000,000 CY Alt. No. 1 Site Life= 15 yrs

Facility Development Costs					
Item	Quantity	Unit	Unit Cost	Total Cost	Comments
A. Permitting					
1. Initial Site Report	1	LS	\$57,000	\$57,000	
2. WNDNR Review Fee for ISR	1	LS	\$3,300	\$3,300	Table 3 - Fee Schedule (NR 520.15) May 2007
3. Feasibility Report (FR)	1	LS	\$454,000	\$454,000	
4. WNDNR Review Fee for FR	1	LS	\$22,000	\$22,000	Table 3 - Fee Schedule (NR 520.15) May 2007
5. Contested Case	1	LS	\$150,000	\$150,000	
6. Plan of Operation (PO)	1	LS	\$284,000	\$284,000	
7. WNDNR Review Fee for PO	1	LS	\$7,700	\$7,700	Table 3 - Fee Schedule (NR 520.15) May 2007
8. Legal and Administration Fees	1	LS	\$114,000	\$114,000	
9. Local Negotiations	1	LS	\$114,000	\$114,000	
10. USEPA Permitting/Coordination	1	LS	\$50,000	\$50,000	
SUBTOTAL				<u>\$1,256,000</u>	
B. Land	234	Acre	\$23,400	\$5,475,600	
C. Infrastructure					
1. Offices	1	LS	\$198,000	\$198,000	
2. Maintenance Building	1	LS	\$892,000	\$892,000	
3. Scale	1	LS	\$50,000	\$50,000	
4. Leachate Tank and Loadout	1	LS	\$100,000	\$100,000	
5. LFG Building/Flare	1	LS	\$500,000	\$500,000	
SUBTOTAL				<u>\$1,740,000</u>	
D. Construction					
1. Site Preparation					
Topsoil, stripping, clearing	165	Acre	\$1,150	\$189,750	
Perimeter Drainage Ditches	14,000	LF	\$7	\$98,000	
Sedimentation Pond	5	Each	\$23,000	\$115,000	
Seeding and Riprap	1	LS	\$100,000	\$100,000	
2. Excavation	1,987,427	CY	\$3	\$5,962,281	Needed to reach subbase grades.
3. Gradient Control System	133,500	CY	\$14	\$1,869,000	Includes sand, piping, and installation, 0.5' thick layer
4. Clay Liner	1,067,733	CY	\$17	\$18,151,461	4-foot-thick, placement and compaction
5. Geosynthetics	800,800	SY	\$8	\$6,406,400	60-mil HDPE & Geotextile
6. Leachate Collection System					
Perforated Pipe	23,000	LF	\$14	\$322,000	6-inch HDPE
Nonperforated Pipe	3,000	LF	\$14	\$42,000	6-inch HDPE
7. Granular Drainage Blanket	267,000	CY	\$17	\$4,539,000	Assumes 1' thickness, loading, hauling, and placement
8. Quality Assurance Testing	165	AC	\$11,500	\$1,897,500	
9. Leachate Collection Sump	23	Each	\$85,000	\$1,955,000	Includes perimeter access manhole
Force Main	14,000	LF	\$28	\$392,000	3-inch HDPE inside a 6-inch HDPE
10. Utility Extension	1	LS	\$250,000	\$250,000	utility allowance
11. Perimeter Berm	279,200	CY	\$3	\$837,600	20cy/LF at 13,960 LF of perimeter
12. Closure	165	Acre	\$159,000	\$26,235,000	
SUBTOTAL D				<u>\$69,361,992</u>	
SUBTOTAL of A, B, C, and D				\$77,834,000	
CONSTRUCTION CONTINGENCY (10%)				\$7,783,400	
TOTAL ALTERNATIVE 1 COST ESTIMATE				<u>\$85,617,400</u>	

By: NFB, 7/20/09
Checked by: JCK 7/24/09

Notes:

1. Costs are in 2007 dollars
2. No allowance has been made for intermediate and daily cover.

Alternative No. 2 Cost Breakdown
Practicable Alternatives Analysis
Veolia Emerald Park Landfill

Alternative No. 2 - No Direct Impact to Agricultural Ditches & Setback from 8-mile road

Total Alternative No. 2 Air Space =	<u>8,144,700</u>	CY	Alt. No. 2 Site Life=	7	yrs
			Greenfield Site Life=	8	yrs

		Facility Development Costs				
Item	Quantity	Unit	Unit Cost	Total Cost	Comments	
A. Permitting						
1.	Initial Site Report	1	LS	\$57,000	\$57,000	
2.	WDNR Review Fee for ISR	1	LS	\$3,300		
3.	Feasibility Report (FR)	1	LS	\$454,000	\$454,000	
4.	WDNR Review Fee for FR	1	LS	\$22,000		
5.	Plan of Operation (PO)	1	LS	\$284,000	\$284,000	
6.	WDNR Review Fee for PO	1	LS	\$7,700		
7.	Legal and Administration Fees	1	LS	\$114,000	\$114,000	
8.	Local Negotiations	1	LS	\$114,000		
9.	USEPA Permitting/Coordination	1	LS	\$0	\$0	
SUBTOTAL				\$1,056,000		
B. Construction						
1.	Site Preparation					
	Topsoil, stripping, clearing	59	Acre	\$1,150	\$67,850	
	Perimeter Drainage Ditches	0	SY	\$0	\$0	
	Sedimentation Basin	3	Each	\$23,000	\$69,000	
	Seeding and Riprap	1	LS	\$23,000	\$23,000	
2.	Excavation	2,867,800	CY	\$3	\$7,169,500	
3.	Gradient Control Layer	35,900	CY	\$14	\$502,600	
4.	Clay Liner	300,500	CY	\$17	\$5,108,500	
5.	Geosynthetics	225,500	SY	\$8	\$1,804,000	
6.	Leachate Collection System					
	Perforated Pipe	8,000	LF	\$14	\$112,000	
	Nonperforated Pipe	4,400	LF	\$14	\$61,600	
7.	Granular Drainage Blanket	75,100	CY	\$17	\$1,276,700	
8.	Quality Assurance Testing	47	AC	\$11,500	\$540,500	
9.	Leachate Collection Sump	9	Each	\$85,000	\$765,000	
	Force Main	4,000	LF	\$28	\$112,000	
10.	Leachate Holding Tank	0	Each	\$0	\$0	
11.	Utility Extension	0	LS	\$0	\$0	
12.	Perimeter Berm	312,900	CY	\$3	\$782,250	
13.	Closure	47	Acre	\$159,000	\$7,473,000	
SUBTOTAL				\$25,868,000		
CONSTRUCTION CONTINGENCY (10%)				\$2,586,800		
SUBTOTAL B WITH CONTINGENCY				\$28,454,800		
TOTAL ALTERNATIVE 2 COST ESTIMATE				\$29,510,800		

By: N. Braun 11/07
Checked by: JCK 12/13/07

- Note:
1. Costs are in 2007 dollars
 2. No allowance has been made for intermediate and daily cover.

Alternative No. 3 Cost Breakdown
Practicable Alternatives Analysis
Veolia Emerald Park Landfill

Alternative No. 3 - No Impacts to Wetlands

Total Alternative No. 3 Air Space = 4,387,800 CY Alt. No. 3 Site Life= 4 yrs
 Greenfield Site Life= 11 yrs

Facility Development Costs					
Item	Quantity	Unit	Unit Cost	Total Cost	Comments
A. Permitting					
1. Initial Site Report	1	LS	\$57,000	\$57,000	
2. WDNR Review Fee for ISR	1	LS	\$3,300	\$3,300	Table 3 - Fee Schedule (NR 520.15) May 2007
3. Feasibility Report (FR)	1	LS	\$454,000	\$454,000	
4. WDNR Review Fee for FR	1	LS	\$22,000	\$22,000	Table 3 - Fee Schedule (NR 520.15) May 2007
5. Plan of Operation (PO)	1	LS	\$284,000	\$284,000	
6. WDNR Review Fee for PO	1	LS	\$7,700	\$7,700	Table 3 - Fee Schedule (NR 520.15) May 2007
7. Legal and Administration Fees	1	LS	\$114,000	\$114,000	
8. Local Negotiations	1	LS	\$114,000	\$114,000	
9. USEPA Permitting/Coordination	1	LS	\$0	\$0	
SUBTOTAL				\$1,056,000	
B. Construction					
1. Site Preparation					
Topsoil, stripping, clearing	44	Acre	\$1,150	\$50,600	
Perimeter Drainage Ditches	0	SY	\$0	\$0	No perimeter drainage ditch in design.
Sedimentation Basin	3	Each	\$23,000	\$69,000	Sedimentation Basins 8, 9, & 10.
Seeding and Riprap	1	LS	\$23,000	\$23,000	
2. Excavation	1,812,400	CY	\$3	\$4,531,000	Needed to reach subbase grades.
3. Gradient Control Layer	24,600	CY	\$14	\$344,400	Includes sand, piping, and installation, 0.5' thick layer
4. Clay Liner	210,500	CY	\$17	\$3,578,500	4-foot-thick, placement and compaction
5. Geosynthetics	158,000	SY	\$8	\$1,264,000	60-mil HDPE & Geotextile
6. Leachate Collection System					
Perforated Pipe	5,500	LF	\$14	\$77,000	
Nonperforated Pipe	3,000	LF	\$14	\$42,000	
7. Granular Drainage Blanket	52,600	CY	\$17	\$894,200	Assumes 1' thickness, loading, hauling, and placement
8. Quality Assurance Testing	33	AC	\$11,500	\$379,500	Soils, Geomembrane/Geosynthetic Documentation
9. Leachate Collection Sump	6	Each	\$85,000	\$510,000	Includes perimeter access manhole
Force Main	1,600	LF	\$28	\$44,800	
10. Leachate Holding Tank	0	Each	\$0	\$0	No additional holding tanks will be installed.
11. Utility Extension	0	LS	\$0	\$0	
12. Perimeter Berm	286,900	CY	\$3	\$717,250	Material Placement, 20cy/LF of berm
13. Closure	33	Acre	\$159,000	\$5,247,000	Area of horiz. & vert. Exp. (Construction & materials)
SUBTOTAL				\$17,772,000	
CONSTRUCTION CONTINGENCY (10%)				\$1,777,200	
SUBTOTAL B WITH CONTINGENCY				\$19,549,200	
TOTAL ALTERNATIVE 3 COST ESTIMATE				\$20,605,200	

By: N. Braun 11/07
 Checked by: JCK 12/13/07

Note:

1. Costs are in 2007 dollars
2. No allowance has been made for intermediate and daily cover.

Alternative No. 4 Cost Breakdown
Practicable Alternatives Analysis
Veolia Emerald Park Landfill

Alternative No. 4 - Preferred Option

Total Alternative No. 4 Air Space = 16,316,300 CY Alt. No. 4 Site Life= 15 yrs
Greenfield Site Life= 0 yrs

Facility Development Costs					
Item	Quantity	Unit	Unit Cost	Total Cost	Comments
A. Permitting					
1. Initial Site Report	1	LS	\$57,000	\$57,000	
2. WDNR Review Fee for ISR	1	LS	\$3,300	\$3,300	Table 3 - Fee Schedule (NR 520.15) May 2007
3. Feasibility Report (FR)	1	LS	\$454,000	\$454,000	
4. WDNR Review Fee for FR	1	LS	\$22,000	\$22,000	Table 3 - Fee Schedule (NR 520.15) May 2007
5. Plan of Operation (PO)	1	LS	\$284,000	\$284,000	
6. WDNR Review Fee for PO	1	LS	\$7,700	\$7,700	Table 3 - Fee Schedule (NR 520.15) May 2007
7. Legal and Administration Fees	1	LS	\$114,000	\$114,000	
8. Local Negotiations	1	LS	\$114,000	\$114,000	
9. USEPA Permitting/Coordination	1	LS	\$0	\$0	
SUBTOTAL				<u>\$1,056,000</u>	
B. Construction					
1. Site Preparation					
Topsoil, stripping, clearing	89	Acre	\$1,150	\$102,350	
Perimeter Drainage Ditches	0	SY	\$0	\$0	No perimeter drainage ditch in design.
Sedimentation Basin	3	Each	\$23,000	\$69,000	Sedimentation Basins 8, 9, & 10. (basins 7 and 8 are constructed side by side)
Seeding and Riprap	1	LS	\$23,000	\$23,000	
2. Excavation	5,934,200	CY	\$3	\$14,835,500	Needed to reach subbase grades (6,060,000 cy will be excavated with 125,000 cy relocated to build berms - see item 12)
3. Gradient Control Layer	64,700	CY	\$14	\$905,800	Includes sand, piping, and installation, 0.5' thick layer
4. Clay Liner	515,200	CY	\$17	\$8,758,400	In-place 4-foot-thick, placement and compaction (no shrinkage or loss factor included)
5. Geosynthetics	399,000	SY	\$8	\$3,192,000	60-mil HDPE & Geotextile (true area accounting for slopes)
6. Leachate Collection System					
Perforated Pipe	12,000	LF	\$14	\$168,000	
Nonperforated Pipe	6,000	LF	\$14	\$84,000	
7. Granular Drainage Blanket	128,000	CY	\$17	\$2,176,000	Assumes 1' thickness, loading, hauling, and placement
8. Quality Assurance Testing	81	AC	\$11,500	\$931,500	Soils, Geomembrane/Geosynthetic Documentation
9. Leachate Collection Sump	8	Each	\$85,000	\$680,000	Includes perimeter access manhole
Force Main	5,000	LF	\$28	\$140,000	
10. Leachate Holding Tank	0	Each	\$0	\$0	No additional holding tanks will be installed.
11. Utility Extension	0	LS	\$0	\$0	
12. Perimeter Berm	125,400	CY	\$3	\$313,500	Material Placement, 20cy/LF of berm
13. Closure	92	Acre	\$159,000	<u>\$14,691,600</u>	Area of horiz. overlay onto existing landfill (71.2 acres horizontal and 21.2 acres overlay). Includes construction and materials.
SUBTOTAL				<u>\$47,071,000</u>	
CONSTRUCTION CONTINGENCY (10%)				<u>\$4,707,100</u>	
SUBTOTAL B WITH CONTINGENCY				<u>\$51,778,100</u>	
TOTAL ALTERNATIVE 4 COST ESTIMATE				<u>\$52,834,100</u>	

By: N. Braun 11/07
Checked by: JCK 12/23/08

Note:

- Costs are in 2007 dollars
- No allowance has been made for intermediate and daily cover.

Updated: jck 1-27-09
Checked: NFB 1/28/09

Alternative No. 5 Cost Breakdown
Practicable Alternatives Analysis
Veolia Emerald Park Landfill

Alternative No. 5 - No direct impact to Wetland No. 12

Total Alternative No. 5 Air Space = 14,726,800 CY Alt. No. 5 Site Life= 14 yrs
Greenfield Site Life= 1 yrs

Facility Development Costs					
Item	Quantity	Unit	Unit Cost	Total Cost	Comments
A. Permitting					
1. Initial Site Report	1	LS	\$57,000	\$57,000	
2. WDNR Review Fee for ISR	1	LS	\$3,300	\$3,300	Table 3 - Fee Schedule (NR 520.15) May 2007
3. Feasibility Report (FR)	1	LS	\$454,000	\$454,000	
4. WDNR Review Fee for FR	1	LS	\$22,000	\$22,000	Table 3 - Fee Schedule (NR 520.15) May 2007
5. Plan of Operation (PO)	1	LS	\$284,000	\$284,000	
6. WDNR Review Fee for PO	1	LS	\$7,700	\$7,700	Table 3 - Fee Schedule (NR 520.15) May 2007
7. Legal and Administration Fees	1	LS	\$114,000	\$114,000	
8. Local Negotiations	1	LS	\$114,000	\$114,000	
9. USEPA Permitting/Coordination	1	LS	\$0	\$0	
SUBTOTAL				<u>\$1,056,000</u>	
B. Construction					
1. Site Preparation					
Topsoil, stripping, clearing	84	Acre	\$1,150	\$96,600	
Perimeter Drainage Ditches	0	SY	\$0	\$0	No perimeter drainage ditch in design.
Sedimentation Basin	3	Each	\$23,000	\$69,000	Sedimentation Basins 8, 9, & 10. (basins 7 and 8 are constructed side by side)
Seeding and Riprap	1	LS	\$23,000	\$23,000	
2. Excavation	5,600,817	CY	\$3	\$14,002,043	
3. Gradient Control Layer	61,500	CY	\$14	\$861,000	Includes sand, piping, and installation, 0.5' thick layer
4. Clay Liner	492,000	CY	\$17	\$8,364,000	In-place 4-foot-thick, placement and compaction (no shrinkage or loss factor included)
5. Geosynthetics	369,000	SY	\$8	\$2,952,000	60-mil HDPE & Geotextile (true area accounting for slopes)
6. Leachate Collection System					
Perforated Pipe	11,000	LF	\$14	\$154,000	
Nonperforated Pipe	5,000	LF	\$14	\$70,000	
7. Granular Drainage Blanket	123,000	CY	\$17	\$2,091,000	Assumes 1' thickness, loading, hauling, and placement
8. Quality Assurance Testing	87	AC	\$11,500	\$1,000,500	Soils, Geomembrane/Geosynthetic Documentation
9. Leachate Collection Sump	8	Each	\$85,000	\$680,000	Includes perimeter access manhole
Force Main	5,000	LF	\$28	\$140,000	
10. Leachate Holding Tank	0	Each	\$0	\$0	No additional holding tanks will be installed.
11. Utility Extension	0	LS	\$0	\$0	
12. Perimeter Berm	125,400	CY	\$3	\$313,500	Material Placement, 20cy/LF of berm
13. Closure	87	Acre	\$159,000	<u>\$13,802,790</u>	Area of horizontal overlay onto existing landfill (65.6 ac horizontal and 21.2 acres overlay)
SUBTOTAL				<u>\$44,619,000</u>	
CONSTRUCTION CONTINGENCY (10%)				<u>\$4,461,900</u>	
SUBTOTAL B WITH CONTINGENCY				<u>\$49,080,900</u>	
TOTAL ALTERNATIVE 4 COST ESTIMATE				<u>\$50,136,900</u>	

By: N. Braun, 7/21/09
Checked by: J. Kucher 7/23/09

Note:

- Costs are in 2007 dollars
- No allowance has been made for intermediate and daily cover.

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Attachment 2

Wetland Functional Value Assessments

Table of Contents

- W4
- W6/W6A
- W7
- W9
- W12

W4

Wisconsin Department of Natural Resources
RAPID ASSESSMENT METHODOLOGY FOR EVALUATING
WETLAND FUNCTIONAL VALUES

GENERAL INFORMATION

Name of Wetland/Owner	Wetland W4, Veolia Environmental Services, Inc.
Location:	SW ¼ of the SE ¼ of Section 36, T5N, R20E
Project Name:	Proposed Landfill Expansion – Emerald Park Landfill
Evaluator(s):	B. Karczewski, NRC
Date(s) of Site Visit(s):	October, 2007

Description of seasonality limitations of this inspection due to time of year of the evaluation and/or current hydrologic and climatologic conditions (e.g. after heavy rains, snow or ice cover, during drought year, during spring flood, during bird migration):

WETLAND DESCRIPTION

Wisconsin Wetlands Inventory classification:

Wetland Type (bold those that apply):

<u>shallow open water</u>	deep marsh	<u>shallow marsh</u>	seasonally flooded basin
bog	floodplain forest	alder thicket	sedge meadow
coniferous swamp	fen	<u>wet meadow</u>	shrub-carr
low prairie	hardwood swamp		

Estimated size of wetland in acres:

SUMMARY OF FUNCTIONAL VALUES

Based on the results of the attached functional assessment, rate the significance of each of the functional values for the subject wetland and check the appropriate box Complete the table as a summary.

Function	Significance				
	Low	Medium	High	Exceptional	N/A
Floral Diversity		X			
Wildlife Habitat		X			
Fishery Habitat					X
Flood/Stormwater Attenuation		X			
Water Quality Protection		X			
Shoreline Protection					X
Groundwater	X				
Aesthetics/Recreation/Education	X				

List any Special Features / Red Flags:

SITE DESCRIPTION

I. HYDROLOGIC SETTING

A. Describe the geomorphology of the wetland:

☒ Depressional (includes slopes, potholes, small lakes, kettles, etc.)

☒ Riverine

☐ Lake Fringe

☐ Extensive Peatland

B. ☒ **N** Has the wetland hydrology been altered by ditching, tiles, dams, culverts, well pumping, diversion of surface flow, or changes to runoff within the watershed (bold those that apply)?

C. ☒ **N** Does the wetland have an inlet, outlet, or both (bold those that apply)?

The outlet from W4 is through D4, a state defined navigable waterway.

D. ☒ **N** Is there any field evidence of wetland hydrology such as buttressed tree trunks, adventitious roots, drift lines, water marks, water stained leaves, soil mottling/gleying, organic soils layer, or oxidized rhizospheres (bold those that apply)?

E. ☒ **N** Does the wetland have standing water, and if so what is the average depth in inches? 3-4 Approximately how much of the wetland is inundated? 20%

F. How is the hydroperiod (seasonal water level pattern) of the wetland classified?

☐ Permanently Flooded

☒ Seasonally Flooded (water absent at end of growing season)

☒ Saturated (surface water seldom present)

☐ Artificially Flooded

☐ Artificially Drained

G. ☒ **N** Is the wetland a navigable body of water or is a portion of the wetland below the ordinary highwater mark of a navigable water body? List any surface waters associated with the wetland or in proximity to the wetland (note approximate distance from the wetland and navigability determination). Note if there is a surface water connection to other wetlands.

II. VEGETATION

A. Identify the vegetation communities present and the dominant species.

	floating leaved community dominated by:
	submerged aquatic community dominated by:
X	emergent community dominated by: <i>Phalaris arundinacea</i> , <i>Typha angustifolia</i> , <i>Typha latifolia</i>
X	shrub community dominated by: <i>Cornus stolonifera</i> , <i>Cornus racemosa</i>
X	deciduous broad-leaved tree community dominated by: <i>Fraxinus pennsylvanica</i> , <i>Acer negundo</i>
	coniferous tree community dominated by:
	open sphagnum mat or bog dominated by:
	sedge meadow/wet prairie community dominated by:
	other (explain):

B. Other plant species identified during site visit:

Refer to wetland delineation report prepared by Natural Resources Consulting, Inc. dated December 1, 2005.

III. SOILS

A. SCS Soil Map classification:

B. Field description:

____ Organic (histosol)? If so, is it a muck or a peat?

X____ Mineral soil?

- Mottling, gleying, sulfidic materials, iron or manganese concretions, organic streaking (bold those that apply)?
- Soil Description: _____
- Depth of mottling/gleying: _____
- Depth of A Horizon _____
- Munsell Color of matrix and mottles

-Matrix below the

A horizon (10" depth): _____

-Mottles:

IV. SURROUNDING LAND USES

A. What is the estimated area of the wetland watershed in acres? 30-50

B. What are the surrounding land uses?

LAND-USE	ESTIMATED % OF WETLAND WATERSHED
Developed (Industrial/Commercial/Residential)	
Agricultural/cropland	75
Agricultural/grazing	
Forested	
Grassed recreation areas/parks	
Old field	
Highways or roads	
Other (specify)	25 (Wetland)

V. SITE SKETCH

FUNCTIONAL ASSESSMENT

The following assessment requires the evaluator to examine site conditions that provide evidence that a given functional value is present and to assess the significance of the wetland to perform those functions. Positive answers to questions indicate the presence of factors important for the function. The questions are not definitive and are only provided to guide the evaluation. After completing each section, the evaluator should consider the factors observed and use best professional judgement to rate the significance. The ratings should be recorded on page 1 of the assessment.

Special Features / RED FLAGS

1. Y N Is the wetland in or adjacent to an area of special natural resource interest (NR 103.04, Wis. Adm. Code)? If so, check those that apply:

- ☐ a. Cold water community as defined in 5. NR 102.04(3)(b), Wis. Adm. Code, (including trout streams, their tributaries, and trout lakes);
- ☐ b. Lakes Michigan and Superior and the Mississippi River;
- ☐ c. State or federal designated wild and scenic river;
- ☐ d. Designated state riverway;
- ☐ e. Designated state scenic urban waterway;
- ☒ f. Environmentally sensitive area or environmental corridor identified in an area-wide water quality management plan, special area management plan, special wetland inventory study, or an advanced delineation and identification study;
- ☐ g. Calcareous fen;
- ☐ h. State park, forest, trail or recreation area;
- ☐ i. State and federal fish and wildlife refuges and fish and wildlife management areas;
- ☐ j. State or federal designated wilderness area;
- ☐ k. Designated or dedicated state natural area;
- ☐ l. Wild rice water listed in ch. NR 19.09, Wis. Adm. Code;
- ☐ m. Surface water identified as an outstanding or exceptional resource water in ch. NR 102, Wis. Adm. Code.

2. Y N According to the Natural Heritage Inventory (Bureau of Endangered Resources) or direct observations, are there any rare, endangered, or threatened plant or animal species in, near, or using the wetland or adjacent lands? If so, list the species of concern:

Refer to NHI letter.

3. Y N Is the project located in an area that requires a State Coastal Zone Management Plan consistency determination?

Floral Diversity

1. Y N Does the wetland support a variety of native plant species (i.e. not a monotypic stand of cattail or giant reed grass and/or not dominated by exotic species such as reed canary grass, brome grass, buckthorn, purple loosestrife, etc.)?
2. Y N Is the wetland plant community regionally scarce or rare?

Wildlife and Fishery Habitat

1. List any species observed, evidenced (e.g. tracks, scat, nest/burrow, calls), or expected to utilize the wetland:

White tailed deer, small mammals, song birds

2. Y N Does the wetland contain a number of diverse vegetative cover types and a high degree of interspersed of those vegetation types?
3. Y N Is the estimated ratio of open water to cover between 30 and 70 percent? What is the estimated ratio?
4. Y N Does the surrounding upland habitat likely support a variety of animal species?
5. Y N Is the wetland part of or associated with a wildlife corridor or designated environmental corridor?
6. Y N Is the surrounding habitat and/or the wetland itself a large tract of undeveloped land important for wildlife that require large home ranges (e.g. bear, woodland passerines)?
7. Y N Is the surrounding habitat and/or the wetland itself a relatively large tract of undeveloped land within an urbanized environment that is important for wildlife?
8. Y N Are there other wetland areas near the subject wetland that may be important to wildlife?
9. Y N Is the wetland contiguous with a permanent waterbody or periodically inundated for sufficient periods of time to provide spawning/nursery habitat for fish?
10. Y N Can the wetland provide significant food base for fish and wildlife (e.g. insects, crustaceans, voles, forage fish, amphibians, reptiles, shrews, wild rice, wild celery, duckweed, pondweeds, watermeal, bulrushes, bur reeds, arrowhead, smartweeds, millets)?
11. Y N Is the wetland located in a priority watershed/township as identified in the Upper Mississippi and Great Lakes Joint Venture of the North American Waterfowl Management Plan?
12. Y N Is the wetland providing habitat that is scarce to the region?

Flood and Stormwater Storage/Attenuation

1. Y N Are there **steep slopes, large impervious areas**, or areas of severe overgrazing within the watershed (bold those that apply)?
2. Y N Does the wetland significantly reduce runoff velocity due to its size, configuration, braided flow patterns, or vegetation type and density?
3. Y N Does the wetland show evidence of flashy water level responses to storm events (debris marks, erosion lines, stormwater inputs; channelized inflow)?
4. Y N Is there a natural feature or human-made structure impeding drainage from the wetland that causes backwater conditions?
5. Y N Considering the size of the wetland area in relation to the size of its watershed, at any time during the year is water likely to reach the wetland's storage capacity (i.e. the level of easily observable wetland vegetation)? (For some cases where greater documentation is required, one should determine if the wetland has capacity to hold 25% of the runoff from a 2 year-24 hour storm event.)
6. Y N Considering the location of the wetland in relation to the associated surface water watershed, is the wetland important for attenuating or storing flood or stormwater peaks (i.e. is the wetland located in the mid or lower reaches of the watershed)?

Water Quality Protection

1. Y N Does the wetland receive **overland flow** or direct discharge of stormwater as a primary source of water (circle that which applies)?
2. Y N Do the surrounding land uses have the potential to deliver significant nutrient and/or sediment loads to the wetland?
3. Y N Based on your answers to the flood/stormwater section above, does the wetland perform significant flood/stormwater attenuation (residence time to allow settling)?
4. Y N Does the wetland have significant vegetative density to decrease water energy and allow settling of suspended materials?
5. Y N Is the position of the wetland in the landscape such that run-off is held or filtered before entering a surface water?
6. Y N Are algal blooms, heavy macrophyte growth, or other signs of excess nutrient loading to the wetland apparent (or historically reported)?

Shoreline Protection

1. Y N Is the wetland in a lake fringe or riverine setting? If NO, STOP and enter "not applicable" for this function. If YES, then answer the applicable questions.
2. Y N Is the shoreline exposed to constant wave action caused by a long wind fetch or boat traffic?
3. Y N Is the shoreline and shallow littoral zone vegetated with submerged or emergent vegetation in the swash zone that decrease wave energy or perennial wetland species that form dense root mats and/or species that have strong stems that are resistant to erosive forces?
4. Y N Is the stream bank prone to erosion due to unstable soils, land uses, or ice floes?
5. Y N Is the stream bank vegetated with densely rooted shrubs that provide upper bank stability?

Groundwater Recharge and Discharge

1. Y N Related to discharge, are there observable (or reported) springs located in the wetland, physical indicators of springs such as marl soil, or vegetation indicators such as watercress or marsh marigold present that tend to indicate the presence of groundwater springs?
2. Y N Related to discharge, may the wetland contribute to the maintenance of base flow in a stream?
3. Y N Related to recharge, is the wetland located on or near a groundwater divide (e.g. a topographic high)?

Aesthetics/Recreation/Education and Science

1. Y N Is the wetland visible from any of the following kinds of vantage points: **roads**, public lands, houses, and/or businesses? (bold all that apply.)
2. Y N Is the wetland in or near any population centers?
3. Y N Is any part of the wetland in public or conservation ownership?
4. Y N Does the public have direct access to the wetland from public roads or waterways? (bold those that apply.)

Aesthetics/Recreation/Education and Science (continued)

5. Is the wetland itself relatively free of obvious human influences, such as:

- | | |
|--|---|
| a. <u>Y</u> <u>N</u> Buildings? | e. <u>Y</u> <u>N</u> Pollution? |
| b. <u>Y</u> <u>N</u> Roads? | f. <u>Y</u> <u>N</u> Filling? |
| c. <u>Y</u> <u>N</u> Other structures? | g. <u>Y</u> <u>N</u> Dredging/draining? |
| d. <u>Y</u> <u>N</u> Trash? | h. <u>Y</u> <u>N</u> Domination by non-native vegetation? |

6. Is the surrounding viewshed relatively free of obvious human influences, such as:

- a. Y N Buildings?
- b. Y N Roads?
- c. Y N Other structures?

7. Y N Is the wetland organized into a variety of visibly separate areas of similar vegetation, color, and/or texture (including areas of open water)?

8. Y N Does the wetland add to the variety of visibly separate areas of similar vegetation, color, and/or texture (including areas of open water) within the landscape as a whole?

9. Does the wetland encourage exploration because any of the following factors are present:

- a. Y N Long views within the wetland?
- b. Y N Long views in the viewshed adjacent to the wetland?
- c. Y N Convoluted edges within and/or around the wetland border?
- d. Y N The wetland provides a different (and perhaps more natural/complex) kind of environment from the surrounding land covers?

10. Y N Is the wetland currently being used for (or does it have the potential to be used for) the following recreational activities? (Check all that apply.)

Activity	Current Use	Potential Use
Nature study/photography		
Hiking/biking/skiing		
Hunting/fishing/trapping		
Boating/canoeing		
Food harvesting		
Others (list)		

11. Y N Is the wetland currently being used, and/or does it have the potential for use for educational or scientific study purposes (bold that which applies)?



W6/W6A

Wisconsin Department of Natural Resources

RAPID ASSESSMENT METHODOLOGY FOR EVALUATING
WETLAND FUNCTIONAL VALUES

W6, W6a

ISOLATED PONDED DEPRESS

GENERAL INFORMATION

Name of Wetland/Owner:	SUPERIOR EMERALD PARK LANDFILL, INC.
Location: County	WAUKESHA; NW 1/4, SE 1/4, Section 36, Township 5N, Range 20E
Project Name:	PROPOSED LANDFILL EXPANSION
Evaluator(s):	J. KELLY, JJR
Date(s) of Site Visit(s):	8 DECEMBER 1995, 9 JANUARY, 3 SEPTEMBER, 11 SEPTEMBER 1996

Description of seasonality limitations of this inspection due to time of year of the evaluation and/or current hydrologic and climatologic conditions (e.g. after heavy rains, snow or ice cover, during drought year, during spring flood, during bird migration):

WETLAND DESCRIPTION

Wisconsin Wetlands Inventory classification:		WETLAND LESS THAN 2 ACRES	
Wetland Type:	shallow open water	deep marsh	shallow marsh
	floodplain forest	alder thicket	sedge meadow
	wet meadow	shrub-carr	low prairie
			seasonally flooded basin
			coniferous swamp
			hardwood swamp
			bog
			fen
Estimated size of wetland in acres:		0.54	

SUMMARY OF FUNCTIONAL VALUES

Based on the results of the attached functional assessment, rate the significance of each of the functional values for the subject wetland and check the appropriate box. Complete the table as a summary.

FUNCTION	SIGNIFICANCE				
	Low	Medium	High	Exceptional	N/A
Floral Diversity	X				
Wildlife Habitat	X				
Fishery Habitat	X				
Flood/Stormwater Attenuation	X				
Water Quality Protection		X			
Shoreline Protection					X
Groundwater	X				
Aesthetics/Recreation/Education	X				

List any Special Features/Red Flags:

SITE DESCRIPTION

I. HYDROLOGIC SETTING

A. Describe the geomorphology of the wetland:

- ☒ Depressional (includes slopes, potholes, small lakes, kettles, etc.)
- ☐ Riverine
- ☐ Lake Fringe
- ☐ Extensive Peatland

B. ☒ N Has the wetland hydrology been altered by ditching, tiles dams, culverts, well pumping, diversion of surface flow, or changes to runoff within the watershed (circle those that apply)?

C. Y ☒ N Does the wetland have an inlet, outlet, or both (circle those that apply)?

D. Y ☒ N Is there any field evidence of wetland hydrology such as buttressed tree trunks, adventitious roots, drift lines, water marks, water stained leaves, soil mottling/gleying, organic soils layer, or oxidized rhizospheres (circle those that apply)?

E. ☒ N Does the wetland have standing water, and if so what is the average depth in inches? 12 Approximately how much of the wetland is inundated? 45 %

F. How is the hydroperiod (seasonal water level pattern) of the wetland classified?

- ☐ Permanently Flooded
- ☒ Seasonally Flooded (water absent at end of growing season)
- ☐ Saturated (surface water seldom present)
- ☐ Artificially Flooded
- ☐ Artificially Drained

G. Y ☒ N Is the wetland a navigable body of water or is a portion of the wetland below the ordinary highwater mark of a navigable water body? List any surface waters associated with the wetland or in proximity to the wetland (note approximate distance from the wetland and navigability determination). Note if there is a surface water connection to other wetlands.

II. VEGETATION

A. Identify the vegetation communities present and the dominant species.

<input type="checkbox"/>	floating leaved community dominated by:
<input type="checkbox"/>	submerged aquatic community dominated by:
<input checked="" type="checkbox"/>	emergent community dominated by: <i>Alisma plantago-aquatica</i>
<input type="checkbox"/>	shrub community dominated by:
<input type="checkbox"/>	deciduous broad-leaved tree community dominated by:
<input type="checkbox"/>	coniferous tree community dominated by:
<input type="checkbox"/>	open sphagnum mat or bog
<input checked="" type="checkbox"/>	sedge meadow/wet prairie community dominated by: <i>Phalaris arundinacea</i> , <i>Polygonum spp</i>
<input type="checkbox"/>	other (explain)

B. Other plant species identified during site visit:

Arctium minus
Amaranthus retroflexus
Echinochloa crus-galli
Bidens sp.

III. SOILS

A. SCS Soil Map Classification: ELLIOTT SILT LOAM

B. Field description:

☐ Organic (histosol)? If so, is it a muck or a peat?

☒ Mineral soil?

- Mottling, gleying, sulfidic materials, iron or manganese concretions, organic streaking (circle those that apply)?
- Soil Description: SILT LOAM
- Depth of mottling/gleying: _____
- Depth of A Horizon > 12 in.
- Munsell Color of matrix and mottles
 - Matrix below the A horizon (10" depth): 10YR 4/4
 - Mottles: _____

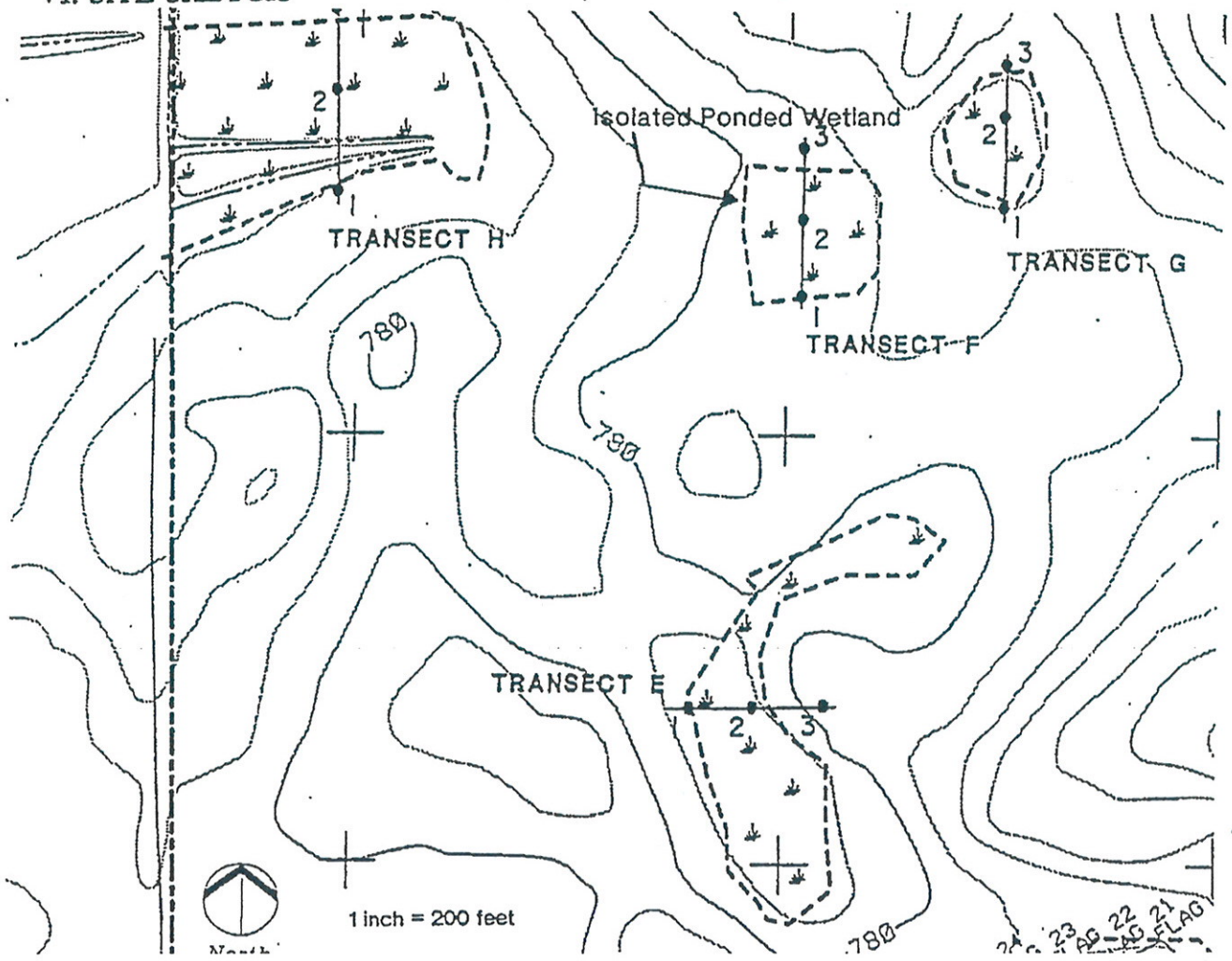
V. SURROUNDING LAND USES

A. What is the estimated area of the wetland watershed in acres? 2.93

B. What are the surrounding land uses?

LAND-USE	ESTIMATED % OF WETLAND WATERSHED
Developed (Industrial/Commercial/Residential)	
Agricultural/cropland	100
Agricultural/grazing	
Forested	
Grassed recreation areas/parks	
Old field	
Highways or roads	
Other (specify)	LANDFILL, WETLANDS FURTHER AWAY

VI. SITE SKETCH



FUNCTIONAL ASSESSMENT

The following assessment requires the evaluator to examine site conditions that provide evidence that a given functional value is present and to assess the significance of the wetland to perform those functions. Positive answers to questions indicate the presence of factors important for the function. The questions are not definitive and are only provided to guide the evaluation. After completing each section, the evaluator should consider the factors observed and use best professional judgement to rate the significance. The ratings should be recorded on page 1 of the assessment.

Special Features/ RED FLAGS

1. Y ☒ N Is the wetland in or adjacent to an area of special natural resource interest (NR 103.04, Wis. Adm. Code)? If so, check those that apply:

- ☐ a. Cold water community as defined in s. NR 102.04(3)(b), Wis. Adm. Code, (including trout streams, their tributaries, and trout lakes);
- ☐ b. Lakes Michigan and Superior and the Mississippi River;
- ☐ c. State or federal designated wild and scenic river;
- ☐ d. Designated state riverway;
- ☐ e. Designated state scenic urban waterway;
- ☐ f. Environmentally sensitive area or environmental corridor identified in an area-wide water quality management plan, special area management plan, special wetland inventory study, or an advanced delineation and identification study;
- ☐ g. Calcareous fen;
- ☐ h. State park, forest, trail or recreation area;
- ☐ i. State and federal fish and wildlife refuges and fish and wildlife management areas;
- ☐ j. State or federal designated wilderness area;
- ☐ k. Designated or dedicated state natural area;
- ☐ l. Wild rice water listed in ch. NR 19.09, Wis. Adm. Code;
- ☐ m. Surface water identified as an outstanding or exceptional resource water in ch. NR 102, Wis. Adm. Code.

2. Y ☒ N According to the Natural Heritage Inventory (Bureau of Endangered Resources) or direct observations, are there any rare, endangered, or threatened plant or animal species in, near, or using the wetland or adjacent lands? If so, list the species of concern:

3. Y ☒ N Is the project located in an area that requires a State Coastal Zone Management Plan consistency determination?

Floral Diversity

1. Y ☒ N Does the wetland support a variety of native plant species (i.e. not a monotypic stand of cattail or giant reed grass and/or not dominated by exotic species such as reed canary grass, brome grass, buckthorn, purple loosestrife, etc.)?
2. Y ☒ N Is the wetland plant community regionally scarce or rare?

Wildlife and Fishery Habitat

1. List any species observed, evidenced (e.g. tracks, scat, nest/burrow, calls), or expected to utilize the wetland:
DEER - EXPECTED
2. Y ☒ N Does the wetland contain a number of diverse vegetative cover types and a high degree of interspersed of those vegetation types?
3. Y ☒ N Is the estimated ratio of open water to cover between 30 and 70 percent? What is the estimated ratio? 45 %
4. Y ☒ N Does the surrounding upland habitat likely support a variety of animal species?
5. Y ☒ N Is the wetland part of or associated with a wildlife corridor or designated environmental corridor?
6. Y ☒ N Is the surrounding habitat and/or the wetland itself a large tract of undeveloped land important for wildlife that require large home ranges (e.g. bear, woodland passerines)?
7. Y ☒ N Is the surrounding habitat and/or the wetland itself a relatively large tract of undeveloped land within an urbanized environment that is important for wildlife?
8. ☒ Y ☒ N Are there other wetland areas near the subject wetland that may be important to wildlife?
9. Y ☒ N Is the wetland contiguous with a permanent waterbody or periodically inundated for sufficient periods of time to provide spawning/nursery habitat for fish?
10. Y ☒ N Can the wetland provide significant food base for fish and wildlife (e.g. insects, crustaceans, voles, forage fish, amphibians, reptiles, shrews, wild rice, wild celery, duckweed, pondweeds, watermeal, bulrushes, bur reeds, arrowhead, smartweeds, millets...)?
11. Y ☒ N Is the wetland located in a priority watershed/township as identified in the Upper Mississippi and Great Lakes Joint Venture of the North American Waterfowl Management Plan?
12. Y ☒ N Is the wetland providing habitat that is scarce to the region?

Flood and Stormwater Storage/Attenuation

1. ☒ N Are there steep slopes, large impervious areas, moderate slopes with row cropping or areas with severe overgrazing within the watershed (circle those that apply)?
2. Y ☒ Does the wetland significantly reduce run-off velocity due to its size, configuration, braided flow patterns, or vegetation type and density?
3. Y ☒ Does the wetland show evidence of flashy water level responses to storm events (debris marks, erosion lines, stormwater inputs, channelized inflow)?
4. ☒ N Is there a natural feature or human-made structure impeding drainage from the wetland that causes backwater conditions?
5. Y ☒ Considering the size of the wetland area in relation to the size of its watershed, at any time during the year is water likely to reach the wetland's storage capacity (i.e. the level of easily observable wetland vegetation)? [For some cases where greater documentation is required, one should determine if the wetland has capacity to hold 25% of the run-off from a 2 year-24 hour storm event.]
6. Y ☒ Considering the location of the wetland in relation to the associated surface water watershed, is the wetland important for attenuating or storing flood or stormwater peaks (i.e. is the wetland located in the mid or lower reaches of the watershed)?

Water Quality Protection

1. ☒ N Does the wetland receive overland flow or direct discharge of stormwater as a primary source of water (circle that which applies)?
2. ☒ N Do the surrounding land uses have the potential to deliver significant nutrient and/or sediment loads to the wetland?
3. ☒ N Based on your answers to the flood/stormwater section above, does the wetland perform significant flood/stormwater attenuation (residence time to allow settling)?
4. ☒ N Does the wetland have significant vegetative density to decrease water energy and allow settling of suspended materials?
5. Y ☒ Is the position of the wetland in the landscape such that run-off is held or filtered before entering a surface water?
6. Y ☒ Are algal blooms, heavy macrophyte growth, or other signs of excess nutrient loading to the wetland apparent (or historically reported)?

Shoreline Protection N/A

1. Y ☒ N Is the wetland in a lake fringe or riverine setting? If NO, STOP and enter "not applicable" for this function. If YES, then answer the applicable questions.

2. Y N Is the shoreline exposed to constant wave action caused by a long wind fetch or boat traffic?

3. Y N Is the shoreline and shallow littoral zone vegetated with submerged or emergent vegetation in the swash zone that decrease wave energy or perennial wetland species that form dense root mats and/or species that have strong stems that are resistant to erosive forces?

4. Y N Is the stream bank prone to erosion due to unstable soils, land uses, or ice floes?

5. Y N Is the stream bank vegetated with densely rooted shrubs that provide upper bank stability?

Groundwater Recharge and Discharge

1. Y ☒ N Related to discharge, are there observable (or reported) springs located in the wetland, physical indicators of springs such as marl soil, or vegetation indicators such as watercress or marsh marigold present that tend to indicate the presence of groundwater springs?

2. Y ☒ N Related to discharge, may the wetland contribute to the maintenance of base flow in a stream?

3. Y ☒ N Related to recharge, is the wetland located on or near a groundwater divide (e.g. a topographic high)?

Aesthetics/Recreation/Education and Science

1. Y ☒ N Is the wetland visible from any of the following kinds of vantage points: roads, public lands, houses, and/or businesses? (Circle all that apply.)

2. Y ☒ N Is the wetland in or near any population centers?

3. Y ☒ N Is any part of the wetland in public or conservation ownership?

4. Y ☒ N Does the public have direct access to the wetland from public roads or waterways? (Circle those that apply.)

Aesthetics/Recreation/Education and Science (continued)

5. Is the wetland itself relatively free of obvious human influences, such as:

- a. ☒ Y ☒ N Buildings? e. Y ☒ N Pollution?
 b. ☒ Y ☒ N Roads? f. Y ☒ N Filling?
 c. ☒ Y ☒ N Other structures? g. Y ☒ N Dredging/drainage?
 d. Y ☒ N Trash? h. Y ☒ N Domination by non-native vegetation?

6. Is the surrounding viewshed relatively free of obvious human influences, such as:

- a. ☒ Y ☒ N Buildings?
 b. ☒ Y ☒ N Roads?
 c. ☒ Y ☒ N Other structures?

7. Y ☒ N Is the wetland organized into a variety of visibly separate areas of similar vegetation, color, and/or texture (including areas of open water)?

8. Y ☒ N Does the wetland add to the variety of visibly separate areas of similar vegetation, color, and/or texture (including areas of open water) within the landscape as a whole?

9. Does the wetland encourage exploration because any of the following factors are present:

- a. Y ☒ N Long views within the wetland?
 b. Y ☒ N Long views in the viewshed adjacent to the wetland?
 c. Y ☒ N Convoluted edges within and/or around the wetland border?
 d. Y ☒ N The wetland provides a different (and perhaps more natural/complex) kind of environment from the surrounding land covers?

10. ☒ Y ☒ N Is the wetland currently being used for (or does it have the potential to be used for) the following recreational activities? (Check all that apply.)

ACTIVITY	CURRENT USE	POTENTIAL USE
Nature study/photography		
Hiking/biking/skiing		
Hunting/fishing/trapping		
Boating/canoeing		
Food harvesting	WHEAT FIELD	
Others (list)		

11. Y ☒ N Is the wetland currently being used, and/or does it have the potential for use for educational or scientific study purposes (circle that which applies)?



W7

Wisconsin Department of Natural Resources

RAPID ASSESSMENT METHODOLOGY FOR EVALUATING
WETLAND FUNCTIONAL VALUES

W-7

GENERAL INFORMATION

ISOLATED FIELD DEPRESSION

Name of Wetland/Owner:	SUPERIOR EMERALD PARK LANDFILL, INC.
Location: County	WAUKESHA; NW 1/4, SE 1/4, Section 36, Township 5N, Range 20E
Project Name:	PROPOSED LANDFILL EXPANSION
Evaluator(s):	J. KELLY, JJR
Date(s) of Site Visit(s):	8 DECEMBER 1995, 9 JANUARY, 3 SEPTEMBER, 11 SEPTEMBER 1996

Description of seasonality limitations of this inspection due to time of year of the evaluation and/or current hydrologic and climatologic conditions (e.g. after heavy rains, snow or ice cover, during drought year, during spring flood, during bird migration):

WETLAND DESCRIPTION

Wisconsin Wetlands Inventory classification:	WETLAND LESS THAN 2 ACRES				
Wetland Type:	shallow open water	deep marsh	shallow marsh	seasonally flooded basin	bog
	floodplain forest	alder thicket	sedge meadow	coniferous swamp	fen
	wet meadow	shrub-carr	low prairie	hardwood swamp	
Estimated size of wetland in acres:	0.31				

SUMMARY OF FUNCTIONAL VALUES

Based on the results of the attached functional assessment, rate the significance of each of the functional values for the subject wetland and check the appropriate box. Complete the table as a summary.

FUNCTION	SIGNIFICANCE				
	Low	Medium	High	Exceptional	N/A
Floral Diversity	X				
Wildlife Habitat	X				
Fishery Habitat					X
Flood/Stormwater Attenuation	X				
Water Quality Protection		X			
Shoreline Protection					X
Groundwater	X				
Aesthetics/Recreation/Education	X				

List any Special Features/Red Flags:

F-W

SITE DESCRIPTION

I. HYDROLOGIC SETTING

A. Describe the geomorphology of the wetland:

- ☒ Depressional (includes slopes, potholes, small lakes, kettles, etc.)
☐ Riverine
☐ Lake Fringe
☐ Extensive Peatland

B. ☒ N Has the wetland hydrology been altered by ditching, tiles dams, culverts, well pumping, diversion of surface flow, or changes to runoff within the watershed (circle those that apply)?

C. Y ☒ N Does the wetland have an inlet, outlet, or both (circle those that apply)?

D. Y ☒ N Is there any field evidence of wetland hydrology such as buttressed tree trunks, adventitious roots, drift lines, water marks, water stained leaves, soil mottling/gleying, organic soils layer, or oxidized rhizospheres (circle those that apply)?

E. Y ☒ N Does the wetland have standing water, and if so what is the average depth in inches? 0 Approximately how much of the wetland is inundated? 0 %

F. How is the hydroperiod (seasonal water level pattern) of the wetland classified?

- ☐ Permanently Flooded
☐ Seasonally Flooded (water absent at end of growing season)
☒ Saturated (surface water seldom present)
☐ Artificially Flooded
☐ Artificially Drained

G. Y ☒ N Is the wetland a navigable body of water or is a portion of the wetland below the ordinary highwater mark of a navigable water body? List any surface waters associated with the wetland or in proximity to the wetland (note approximate distance from the wetland and navigability determination). Note if there is a surface water connection to other wetlands.

II. VEGETATION

A. Identify the vegetation communities present and the dominant species.

<input type="checkbox"/>	floating leaved community dominated by:
<input type="checkbox"/>	submerged aquatic community dominated by:
<input type="checkbox"/>	emergent community dominated by:
<input type="checkbox"/>	shrub community dominated by:
<input type="checkbox"/>	deciduous broad-leaved tree community dominated by:
<input type="checkbox"/>	coniferous tree community dominated by:
<input type="checkbox"/>	open sphagnum mat or bog
<input checked="" type="checkbox"/>	sedge meadow/wet prairie community dominated by: HYBRID CATTAIL, REED CANARY GRASS
<input type="checkbox"/>	other (explain)

B. Other plant species identified during site visit:

Salix exigua
Glycine max
Asclepias syriaca
Setaria faberi

III. SOILS

A. SCS Soil Map Classification: ELLIOTT SILT LOAM

B. Field description:

☐ Organic (histosol)? If so, is it a muck or a peat?

☒ Mineral soil?

- Mottling, gleying, sulfidic materials, iron or manganese concretions, organic streaking (circle those that apply)?

• Soil Description: SILTY CLAY

• Depth of mottling/gleying: _____

• Depth of A Horizon > 12 in.

• Munsell Color of matrix and mottles

-Matrix below the

A horizon (10" depth): 10YR 4/4

-Mottles: _____

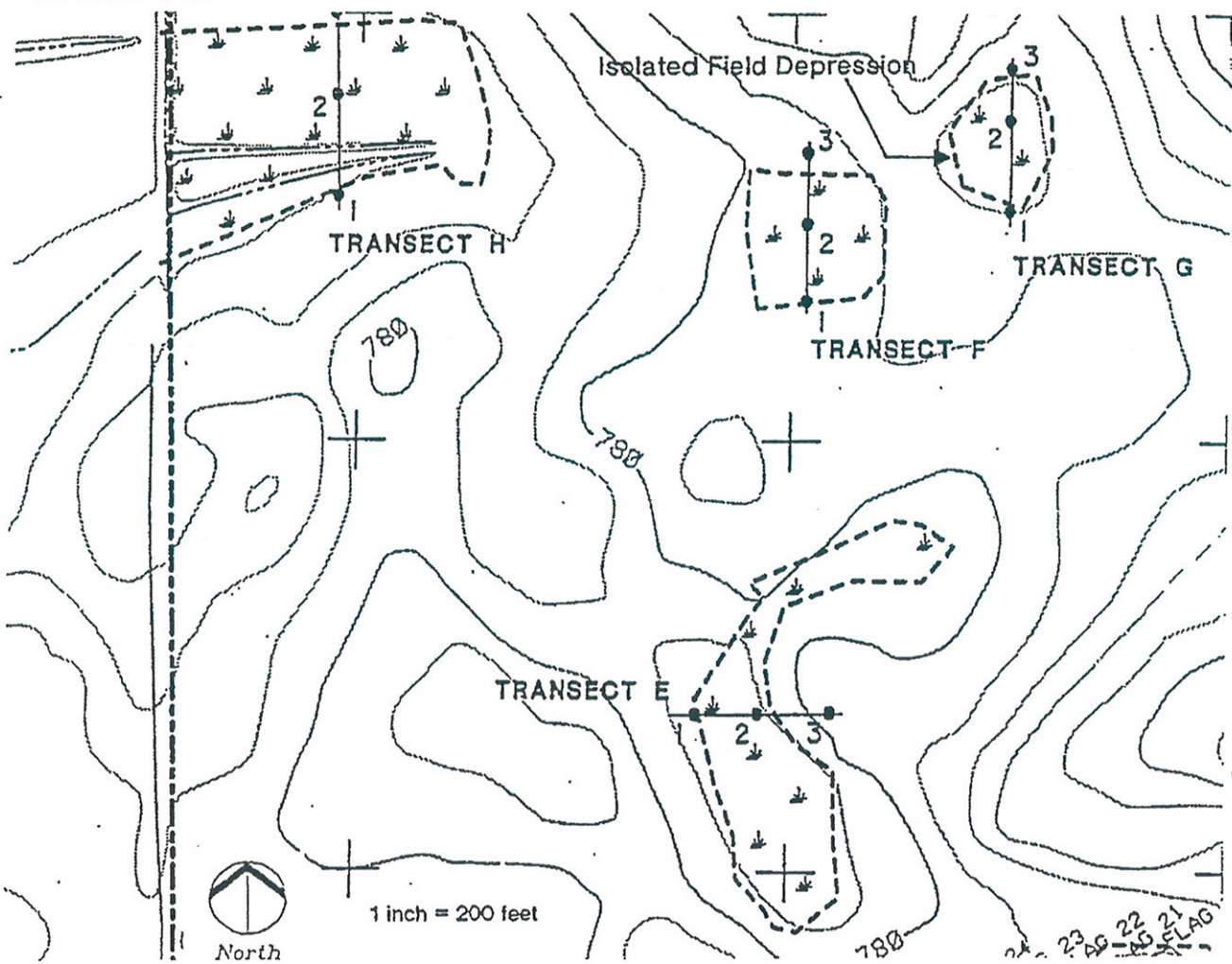
V. SURROUNDING LAND USES

A. What is the estimated area of the wetland watershed in acres? 4.68

B. What are the surrounding land uses?

LAND-USE	ESTIMATED % OF WETLAND WATERSHED
Developed (Industrial/Commercial/Residential)	
Agricultural/cropland	100
Agricultural/grazing	
Forested	
Grassed recreation areas/parks	
Old field	
Highways or roads	
Other (specify)	LANDFILL AND WETLANDS FURTHER AWAY

VI. SITE SKETCH



FUNCTIONAL ASSESSMENT

The following assessment requires the evaluator to examine site conditions that provide evidence that a given functional value is present and to assess the significance of the wetland to perform those functions. Positive answers to questions indicate the presence of factors important for the function. The questions are not definitive and are only provided to guide the evaluation. After completing each section, the evaluator should consider the factors observed and use best professional judgement to rate the significance. The ratings should be recorded on page 1 of the assessment.

Special Features/ RED FLAGS

1. Y ☒ N Is the wetland in or adjacent to an area of special natural resource interest (NR 103.04, Wis. Adm. Code)? If so, check those that apply:

- ☐ a. Cold water community as defined in s. NR 102.04(3)(b), Wis. Adm. Code, (including trout streams, their tributaries, and trout lakes);
- ☐ b. Lakes Michigan and Superior and the Mississippi River;
- ☐ c. State or federal designated wild and scenic river;
- ☐ d. Designated state riverway;
- ☐ e. Designated state scenic urban waterway;
- ☐ f. Environmentally sensitive area or environmental corridor identified in an area-wide water quality management plan, special area management plan, special wetland inventory study, or an advanced delineation and identification study;
- ☐ g. Calcareous fen;
- ☐ h. State park, forest, trail or recreation area;
- ☐ i. State and federal fish and wildlife refuges and fish and wildlife management areas;
- ☐ j. State or federal designated wilderness area;
- ☐ k. Designated or dedicated state natural area;
- ☐ l. Wild rice water listed in ch. NR 19.09, Wis. Adm. Code;
- ☐ m. Surface water identified as an outstanding or exceptional resource water in ch. NR 102, Wis. Adm. Code.

2. Y ☒ N According to the Natural Heritage Inventory (Bureau of Endangered Resources) or direct observations, are there any rare, endangered, or threatened plant or animal species in, near, or using the wetland or adjacent lands? If so, list the species of concern:

3. Y ☒ N Is the project located in an area that requires a State Coastal Zone Management Plan consistency determination?

Floral Diversity

1. Y ☒ N Does the wetland support a variety of native plant species (i.e. not a monotypic stand of cattail or giant reed grass and/or not dominated by exotic species such as reed canary grass, brome grass, buckthorn, purple loosestrife, etc.)?
2. Y ☒ N Is the wetland plant community regionally scarce or rare?

Wildlife and Fishery Habitat

1. List any species observed, evidenced (e.g. tracks, scat, nest/burrow, calls), or expected to utilize the wetland:

DEER - EXPECTED

2. Y ☒ N Does the wetland contain a number of diverse vegetative cover types and a high degree of interspersed of those vegetation types?
3. Y ☒ N Is the estimated ratio of open water to cover between 30 and 70 percent? What is the estimated ratio? 0 %
4. Y ☒ N Does the surrounding upland habitat likely support a variety of animal species?
5. Y ☒ N Is the wetland part of or associated with a wildlife corridor or designated environmental corridor?
6. Y ☒ N Is the surrounding habitat and/or the wetland itself a large tract of undeveloped land important for wildlife that require large home ranges (e.g. bear, woodland passerines)?
7. Y ☒ N Is the surrounding habitat and/or the wetland itself a relatively large tract of undeveloped land within an urbanized environment that is important for wildlife?
8. ☒ Y ☒ N Are there other wetland areas near the subject wetland that may be important to wildlife?
9. Y ☒ N Is the wetland contiguous with a permanent waterbody or periodically inundated for sufficient periods of time to provide spawning/nursery habitat for fish?
10. Y ☒ N Can the wetland provide significant food base for fish and wildlife (e.g. insects, crustaceans, voles, forage fish, amphibians, reptiles, shrews, wild rice, wild celery, duckweed, pondweeds, watermeal, bulrushes, bur reeds, arrowhead, smartweeds, millets...)?
11. Y ☒ N Is the wetland located in a priority watershed/township as identified in the Upper Mississippi and Great Lakes Joint Venture of the North American Waterfowl Management Plan?
12. Y ☒ N Is the wetland providing habitat that is scarce to the region?

Flood and Stormwater Storage/Attenuation

1. ☒ N Are there steep slopes, large impervious areas, moderate slopes with row cropping, or areas with severe overgrazing within the watershed (circle those that apply)?
2. Y ☒ Does the wetland significantly reduce run-off velocity due to its size, configuration, braided flow patterns, or vegetation type and density?
3. Y ☒ Does the wetland show evidence of flashy water level responses to storm events (debris marks, erosion lines, stormwater inputs, channelized inflow)?
4. ☒ N Is there a natural feature or human-made structure impeding drainage from the wetland that causes backwater conditions?
5. Y ☒ Considering the size of the wetland area in relation to the size of its watershed, at any time during the year is water likely to reach the wetland's storage capacity (i.e. the level of easily observable wetland vegetation)? [For some cases where greater documentation is required, one should determine if the wetland has capacity to hold 25% of the run-off from a 2 year-24 hour storm event.]
6. Y ☒ Considering the location of the wetland in relation to the associated surface water watershed, is the wetland important for attenuating or storing flood or stormwater peaks (i.e. is the wetland located in the mid or lower reaches of the watershed)?

Water Quality Protection

1. ☒ N Does the wetland receive overland flow or direct discharge of stormwater as a primary source of water (circle that which applies)?
2. ☒ N Do the surrounding land uses have the potential to deliver significant nutrient and/or sediment loads to the wetland?
3. ☒ N Based on your answers to the flood/stormwater section above, does the wetland perform significant flood/stormwater attenuation (residence time to allow settling)?
4. ☒ N Does the wetland have significant vegetative density to decrease water energy and allow settling of suspended materials?
5. Y ☒ Is the position of the wetland in the landscape such that run-off is held or filtered before entering a surface water?
6. Y ☒ Are algal blooms, heavy macrophyte growth, or other signs of excess nutrient loading to the wetland apparent (or historically reported)?

Shoreline Protection N/A

1. Y ☒ N Is the wetland in a lake fringe or riverine setting? If NO, STOP and enter "not applicable" for this function. If YES, then answer the applicable questions.

2. Y N Is the shoreline exposed to constant wave action caused by a long wind fetch or boat traffic?

3. Y N Is the shoreline and shallow littoral zone vegetated with submerged or emergent vegetation in the swash zone that decrease wave energy or perennial wetland species that form dense root mats and/or species that have strong stems that are resistant to erosive forces?

4. Y N Is the stream bank prone to erosion due to unstable soils, land uses, or ice floes?

5. Y N Is the stream bank vegetated with densely rooted shrubs that provide upper bank stability?

Groundwater Recharge and Discharge

1. Y ☒ N Related to discharge, are there observable (or reported) springs located in the wetland, physical indicators of springs such as marl soil, or vegetation indicators such as watercress or marsh marigold present that tend to indicate the presence of groundwater springs?

2. Y ☒ N Related to discharge, may the wetland contribute to the maintenance of base flow in a stream?

3. Y ☒ N Related to recharge, is the wetland located on or near a groundwater divide (e.g. a topographic high)?

Aesthetics/Recreation/Education and Science

1. Y ☒ N Is the wetland visible from any of the following kinds of vantage points: roads, public lands, houses, and/or businesses? (Circle all that apply.)

2. Y ☒ N Is the wetland in or near any population centers?

3. Y ☒ N Is any part of the wetland in public or conservation ownership?

4. Y ☒ N Does the public have direct access to the wetland from public roads or waterways? (Circle those that apply.)

Aesthetics/Recreation/Education and Science (continued)

5. Is the wetland itself relatively free of obvious human influences, such as:

- a. ☒ Y ☐ N Buildings? e. ☒ Y ☐ N Pollution?
 b. ☒ Y ☐ N Roads? f. ☒ Y ☐ N Filling?
 c. ☒ Y ☐ N Other structures? g. ☒ Y ☐ N Dredging/drainage?
 d. ☒ Y ☐ N Trash? h. ☒ Y ☐ N Domination by non-native vegetation?

6. Is the surrounding viewshed relatively free of obvious human influences, such as:

- a. ☒ Y ☐ N Buildings?
 b. ☒ Y ☐ N Roads?
 c. ☒ Y ☐ N Other structures?

7. ☒ Y ☐ N Is the wetland organized into a variety of visibly separate areas of similar vegetation, color, and/or texture (including areas of open water)?

8. ☒ Y ☐ N Does the wetland add to the variety of visibly separate areas of similar vegetation, color, and/or texture (including areas of open water) within the landscape as a whole?

9. Does the wetland encourage exploration because any of the following factors are present:

- a. ☒ Y ☐ N Long views within the wetland?
 b. ☒ Y ☐ N Long views in the viewshed adjacent to the wetland?
 c. ☒ Y ☐ N Convoluted edges within and/or around the wetland border?
 d. ☒ Y ☐ N The wetland provides a different (and perhaps more natural/complex) kind of environment from the surrounding land covers?

10. ☒ Y ☐ N Is the wetland currently being used for (or does it have the potential to be used for) the following recreational activities? (Check all that apply.)

ACTIVITY	CURRENT USE	POTENTIAL USE
Nature study/photography		
Hiking/biking/skiing		
Hunting/fishing/trapping		
Boating/canoeing		
Food harvesting	WHEAT FIELD	
Others (list)		

11. ☒ Y ☐ N Is the wetland currently being used, and/or does it have the potential for use for educational or scientific study purposes (circle that which applies)?



W9

Wisconsin Department of Natural Resources

RAPID ASSESSMENT METHODOLOGY FOR EVALUATING
WETLAND FUNCTIONAL VALUES

W-9

GENERAL INFORMATION

SOUTHERN END OF LARGE WESTERN WET

Name of Wetland/Owner:	SUPERIOR EMERALD PARK LANDFILL, INC.
Location: County	WAUKESHA ; NE 1/4, SW 1/4, Section 36, Township 5N, Range 20E
Project Name:	PROPOSED LANDFILL EXPANSION
Evaluator(s):	J. KELLY, JJR
Date(s) of Site Visit(s):	8 DECEMBER 1995, 9 JANUARY, 3 SEPTEMBER, 11 SEPTEMBER 1996

Description of seasonality limitations of this inspection due to time of year of the evaluation and/or current hydrologic and climatologic conditions (e.g. after heavy rains, snow or ice cover, during drought year, during spring flood, during bird migration):

WETLAND DESCRIPTION

Wisconsin Wetlands Inventory classification:	E2K
Wetland Type:	shallow open water deep marsh shallow marsh seasonally flooded basin bog floodplain forest alder thicket sedge meadow coniferous swamp fen <u>wet meadow</u> shrub-carr low prairie hardwood swamp
Estimated size of wetland in acres:	1.45

SUMMARY OF FUNCTIONAL VALUES

Based on the results of the attached functional assessment, rate the significance of each of the functional values for the subject wetland and check the appropriate box. Complete the table as a summary.

FUNCTION	SIGNIFICANCE				
	Low	Medium	High	Exceptional	N/A
Floral Diversity	X				
Wildlife Habitat	X				
Fishery Habitat					X
Flood/Stormwater Attenuation	X				
Water Quality Protection	X				
Shoreline Protection					X
Groundwater	X				
Aesthetics/Recreation/Education	X				

List any Special Features/Red Flags:

SITE DESCRIPTION

I. HYDROLOGIC SETTING

A. Describe the geomorphology of the wetland:

- ☒ Depressional (includes slopes, potholes, small lakes, kettles, etc.)
- ☐ Riverine
- ☐ Lake Fringe
- ☐ Extensive Peatland

B. ☒ Y ☐ N Has the wetland hydrology been altered by ditching, tiles, dams, culverts, well pumping, diversion of surface flow, or changes to runoff within the watershed (circle those that apply)?

C. ☒ Y ☐ N Does the wetland have an inlet, outlet, or both (circle those that apply)?

D. ☒ Y ☐ N Is there any field evidence of wetland hydrology such as buttressed tree trunks, adventitious roots, drift lines, water marks, water stained leaves, soil mottling/gleying, organic soils layer, or oxidized rhizospheres (circle those that apply)?

E. Y ☒ N Does the wetland have standing water, and if so what is the average depth in inches? _____ Approximately how much of the wetland is inundated? 0 %

F. How is the hydroperiod (seasonal water level pattern) of the wetland classified?

- ☐ Permanently Flooded
- ☐ Seasonally Flooded (water absent at end of growing season)
- ☒ Saturated (surface water seldom present)
- ☐ Artificially Flooded
- ☐ Artificially Drained

G. Y ☒ N Is the wetland a navigable body of water or is a portion of the wetland below the ordinary highwater mark of a navigable water body? List any surface waters associated with the wetland or in proximity to the wetland (note approximate distance from the wetland and navigability determination). Note if there is a surface water connection to other wetlands.

II. VEGETATION

A. Identify the vegetation communities present and the dominant species.

	floating leaved community dominated by:
	submerged aquatic community dominated by:
	emergent community dominated by:
	shrub community dominated by:
	deciduous broad-leaved tree community dominated by:
	coniferous tree community dominated by:
	open sphagnum mat or bog
X	sedge meadow/wet prairie community dominated by: <i>Phalaris arundinacea</i>
	other (explain)

B. Other plant species identified during site visit:

Helenium autumnale
Populus deltoides

III. SOILS

A. SCS Soil Map Classification: MUSKEGO & OGDEN MUCKS

B. Field description:

X Organic (histosol)? If so, is it a muck or a peat?

___ Mineral soil?

- Mottling, gleying, sulfidic materials, iron or manganese concretions, organic streaking (circle those that apply)?

• Soil Description: _____

• Depth of mottling/gleying: _____

• Depth of A Horizon _____

• Munsell Color of matrix and mottles

-Matrix below the

A horizon (10" depth): _____

-Mottles: _____

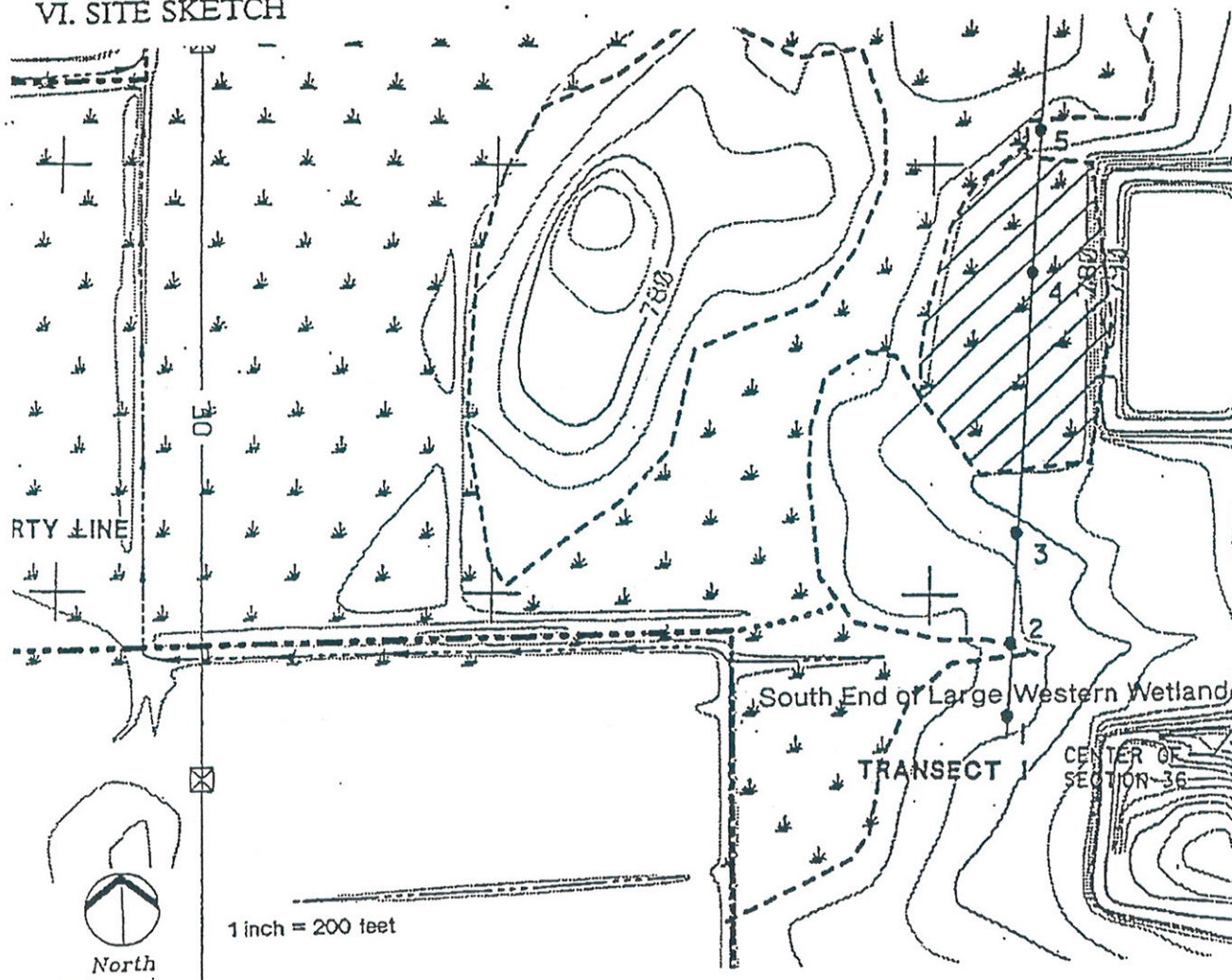
V. SURROUNDING LAND USES

A. What is the estimated area of the wetland watershed in acres? 10.66

B. What are the surrounding land uses?

LAND-USE	ESTIMATED % OF WETLAND WATERSHED
Developed (Industrial/Commercial/Residential)	
Agricultural/cropland	25
Agricultural/grazing	
Forested	
Grassed recreation areas/parks	
Old field	25
Highways or roads	
Other (specify) <u>WETLAND</u>	50

VI. SITE SKETCH



FUNCTIONAL ASSESSMENT

The following assessment requires the evaluator to examine site conditions that provide evidence that a given functional value is present and to assess the significance of the wetland to perform those functions. Positive answers to questions indicate the presence of factors important for the function. The questions are not definitive and are only provided to guide the evaluation. After completing each section, the evaluator should consider the factors observed and use best professional judgement to rate the significance. The ratings should be recorded on page 1 of the assessment.

Special Features/ RED FLAGS

1. Y ☒ N Is the wetland in or adjacent to an area of special natural resource interest (NR 103.04, Wis. Adm. Code)? If so, check those that apply:

- ☐ a. Cold water community as defined in s. NR 102.04(3)(b), Wis. Adm. Code, (including trout streams, their tributaries, and trout lakes);
- ☐ b. Lakes Michigan and Superior and the Mississippi River;
- ☐ c. State or federal designated wild and scenic river;
- ☐ d. Designated state riverway;
- ☐ e. Designated state scenic urban waterway;
- ☐ f. Environmentally sensitive area or environmental corridor identified in an area-wide water quality management plan, special area management plan, special wetland inventory study, or an advanced delineation and identification study;
- ☐ g. Calcareous fen;
- ☐ h. State park, forest, trail or recreation area;
- ☐ i. State and federal fish and wildlife refuges and fish and wildlife management areas;
- ☐ j. State or federal designated wilderness area;
- ☐ k. Designated or dedicated state natural area;
- ☐ l. Wild rice water listed in ch. NR 19.09, Wis. Adm. Code;
- ☐ m. Surface water identified as an outstanding or exceptional resource water in ch. NR 102, Wis. Adm. Code.

2. Y ☒ N According to the Natural Heritage Inventory (Bureau of Endangered Resources) or direct observations, are there any rare, endangered, or threatened plant or animal species in, near, or using the wetland or adjacent lands? If so, list the species of concern:

3. Y ☒ N Is the project located in an area that requires a State Coastal Zone Management Plan consistency determination?

Floral Diversity

1. Y ☒ N Does the wetland support a variety of native plant species (i.e. not a monotypic stand of cattail or giant reed grass and/or not dominated by exotic species such as reed canary grass, brome grass, buckthorn, purple loosestrife, etc.)?
2. Y ☒ N Is the wetland plant community regionally scarce or rare?

Wildlife and Fishery Habitat

1. List any species observed, evidenced (e.g. tracks, scat, nest/burrow, calls), or expected to utilize the wetland:

DEER- EXPECTED

2. Y ☒ N Does the wetland contain a number of diverse vegetative cover types and a high degree of interspersions of those vegetation types?
3. Y ☒ N Is the estimated ratio of open water to cover between 30 and 70 percent? What is the estimated ratio? 0 %
4. ☒ Y ☒ N Does the surrounding upland habitat likely support a variety of animal species?
5. ☒ Y ☒ N Is the wetland part of or associated with a wildlife corridor or designated environmental corridor?
6. Y ☒ N Is the surrounding habitat and/or the wetland itself a large tract of undeveloped land important for wildlife that require large home ranges (e.g. bear, woodland passerines)?
7. Y ☒ N Is the surrounding habitat and/or the wetland itself a relatively large tract of undeveloped land within an urbanized environment that is important for wildlife?
8. ☒ Y ☒ N Are there other wetland areas near the subject wetland that may be important to wildlife?
9. Y ☒ N Is the wetland contiguous with a permanent waterbody or periodically inundated for sufficient periods of time to provide spawning/nursery habitat for fish?
10. Y ☒ N Can the wetland provide significant food base for fish and wildlife (e.g. insects, crustaceans, voles, forage fish, amphibians, reptiles, shrews, wild rice, wild celery, duckweed, pondweeds, watermeal, bulrushes, bur reeds, arrowhead, smartweeds, millets...)?
11. Y ☒ N Is the wetland located in a priority watershed/township as identified in the Upper Mississippi and Great Lakes Joint Venture of the North American Waterfowl Management Plan?
12. Y ☒ N Is the wetland providing habitat that is scarce to the region?

Flood and Stormwater Storage/Attenuation

1. ☒ Y ☐ N Are there steep slopes, large impervious areas, moderate slopes with row cropping, or areas with severe overgrazing within the watershed (circle those that apply)?

2. Y ☒ N Does the wetland significantly reduce run-off velocity due to its size, configuration, braided flow patterns, or vegetation type and density?

3. Y ☒ N Does the wetland show evidence of flashy water level responses to storm events (debris marks, erosion lines, stormwater inputs, channelized inflow)?

4. Y ☒ N Is there a natural feature or human-made structure impeding drainage from the wetland that causes backwater conditions?

5. Y ☒ N Considering the size of the wetland area in relation to the size of its watershed, at any time during the year is water likely to reach the wetland's storage capacity (i.e. the level of easily observable wetland vegetation)? [For some cases where greater documentation is required, one should determine if the wetland has capacity to hold 25% of the run-off from a 2 year-24 hour storm event.]

6. Y ☒ N Considering the location of the wetland in relation to the associated surface water watershed, is the wetland important for attenuating or storing flood or stormwater peaks (i.e. is the wetland located in the mid or lower reaches of the watershed)?

Water Quality Protection

1. ☒ Y ☐ N Does the wetland receive overland flow or direct discharge of stormwater as a primary source of water (circle that which applies)?

2. ☒ Y ☐ N Do the surrounding land uses have the potential to deliver significant nutrient and/or sediment loads to the wetland?

3. Y ☒ N Based on your answers to the flood/stormwater section above, does the wetland perform significant flood/stormwater attenuation (residence time to allow settling)?

4. Y ☒ N Does the wetland have significant vegetative density to decrease water energy and allow settling of suspended materials?

5. Y ☒ N Is the position of the wetland in the landscape such that run-off is held or filtered before entering a surface water?

6. Y ☒ N Are algal blooms, heavy macrophyte growth, or other signs of excess nutrient loading to the wetland apparent (or historically reported)?

Shoreline Protection N/A

1. Y ☒ N Is the wetland in a lake fringe or riverine setting? If NO, STOP and enter "not applicable" for this function. If YES, then answer the applicable questions.
2. Y N Is the shoreline exposed to constant wave action caused by a long wind fetch or boat traffic?
3. Y N Is the shoreline and shallow littoral zone vegetated with submerged or emergent vegetation in the swash zone that decrease wave energy or perennial wetland species that form dense root mats and/or species that have strong stems that are resistant to erosive forces?
4. Y N Is the stream bank prone to erosion due to unstable soils, land uses, or ice floes?
5. Y N Is the stream bank vegetated with densely rooted shrubs that provide upper bank stability?

Groundwater Recharge and Discharge

1. Y ☒ N Related to discharge, are there observable (or reported) springs located in the wetland, physical indicators of springs such as marl soil, or vegetation indicators such as watercress or marsh marigold present that tend to indicate the presence of groundwater springs?
2. Y ☒ N Related to discharge, may the wetland contribute to the maintenance of base flow in a stream?
3. Y ☒ N Related to recharge, is the wetland located on or near a groundwater divide (e.g. a topographic high)?

Aesthetics/Recreation/Education and Science

1. Y ☒ N Is the wetland visible from any of the following kinds of vantage points: roads, public lands, houses, and/or businesses? (Circle all that apply.)
2. Y ☒ N Is the wetland in or near any population centers?
3. Y ☒ N Is any part of the wetland in public or conservation ownership?
4. Y ☒ N Does the public have direct access to the wetland from public roads or waterways? (Circle those that apply.)

Aesthetics/Recreation/Education and Science (continued)

5. Is the wetland itself relatively free of obvious human influences, such as:

- a. ☒ Y ☒ N Buildings? e. ☒ Y ☒ N Pollution?
 b. ☒ Y ☒ N Roads? f. ☒ Y ☒ N Filling?
 c. ☒ Y ☒ N Other structures? g. Y ☒ N Dredging/drainage?
 d. ☒ Y ☒ N Trash? h. Y ☒ N Domination by non-native vegetation?

6. Is the surrounding viewshed relatively free of obvious human influences, such as:

- a. ☒ Y ☒ N Buildings?
 b. ☒ Y ☒ N Roads?
 c. ☒ Y ☒ N Other structures?

7. Y ☒ N Is the wetland organized into a variety of visibly separate areas of similar vegetation, color, and/or texture (including areas of open water)?

8. Y ☒ N Does the wetland add to the variety of visibly separate areas of similar vegetation, color, and/or texture (including areas of open water) within the landscape as a whole?

9. Does the wetland encourage exploration because any of the following factors are present:

- a. Y ☒ N Long views within the wetland?
 b. Y ☒ N Long views in the viewshed adjacent to the wetland?
 c. Y ☒ N Convoluted edges within and/or around the wetland border?
 d. Y ☒ N The wetland provides a different (and perhaps more natural/complex) kind of environment from the surrounding land covers?

10. Y N Is the wetland currently being used for (or does it have the potential to be used for) the following recreational activities? (Check all that apply.)

ACTIVITY	CURRENT USE	POTENTIAL USE
Nature study/photography		
Hiking/biking/skiing		
Hunting/fishing/trapping		
Boating/canoeing		
Food harvesting	WHEAT FIELD	
Others (list)		

11. Y ☒ N Is the wetland currently being used, and/or does it have the potential for use for educational or scientific study purposes (circle that which applies)?



W12

Wisconsin Department of Natural Resources
RAPID ASSESSMENT METHODOLOGY FOR EVALUATING
WETLAND FUNCTIONAL VALUES

GENERAL INFORMATION

Name of Wetland/Owner	Wetland W12, Veolia Environmental Services, Inc.
Location:	SE ¼ of the SW ¼ of Section 36, T5N, R20E
Project Name:	Proposed Landfill Expansion – Emerald Park Landfill
Evaluator(s):	B. Karczewski, NRC
Date(s) of Site Visit(s):	October, 2007

Description of seasonality limitations of this inspection due to time of year of the evaluation and/or current hydrologic and climatologic conditions (e.g. after heavy rains, snow or ice cover, during drought year, during spring flood, during bird migration):

WETLAND DESCRIPTION

Wisconsin Wetlands Inventory classification:

Wetland Type (bold those that apply):

shallow open water	deep marsh	shallow marsh	seasonally flooded basin
bog	floodplain forest	alder thicket	sedge meadow
coniferous swamp	fen	<u>wet meadow</u>	shrub-carr
low prairie	hardwood swamp		

Estimated size of wetland in acres: 3 acres

SUMMARY OF FUNCTIONAL VALUES

Based on the results of the attached functional assessment, rate the significance of each of the functional values for the subject wetland and check the appropriate box. Complete the table as a summary.

Function	Significance				
	Low	Medium	High	Exceptional	N/A
Floral Diversity	X				
Wildlife Habitat		X			
Fishery Habitat					X
Flood/Stormwater Attenuation		X			
Water Quality Protection		X			
Shoreline Protection					X
Groundwater	X				
Aesthetics/Recreation/Education	X				

List any Special Features / Red Flags:

SITE DESCRIPTION

I. HYDROLOGIC SETTING

A. Describe the geomorphology of the wetland:

☒ Depressional (includes slopes, potholes, small lakes, kettles, etc.)

☐ Riverine

☐ Lake Fringe

☐ Extensive Peatland

B. ☒ ☐ N Has the wetland hydrology been altered by ditching, tiles, dams, culverts, well pumping, **diversion of surface flow**, or changes to runoff within the watershed (bold those that apply)?

C. ☒ ☐ N Does the wetland have an inlet, outlet, or both (bold those that apply)?

D. ☒ ☐ N Is there any field evidence of wetland hydrology such as buttressed tree trunks, adventitious roots, drift lines, water marks, water stained leaves, soil mottling/gleying, organic soils layer, or oxidized rhizospheres (bold those that apply)?

E. ☒ ☐ N Does the wetland have standing water, and if so what is the average depth in inches? Approximately how much of the wetland is inundated? %

F. How is the hydroperiod (seasonal water level pattern) of the wetland classified?

☐ Permanently Flooded

☐ Seasonally Flooded (water absent at end of growing season)

☒ Saturated (surface water seldom present)

☐ Artificially Flooded

☐ Artificially Drained

G. ☒ ☐ N Is the wetland a navigable body of water or is a portion of the wetland below the ordinary highwater mark of a navigable water body? List any surface waters associated with the wetland or in proximity to the wetland (note approximate distance from the wetland and navigability determination). Note if there is a surface water connection to other wetlands.

II. VEGETATION

A. Identify the vegetation communities present and the dominant species.

	floating leaved community dominated by:
	submerged aquatic community dominated by:
X	emergent community dominated by: <i>Phalaris arundinacea</i> ,
X	shrub community dominated by: <i>Cornus stolonifera</i> ,
X	deciduous broad-leaved tree community dominated by: <i>Acer negundo</i>
	coniferous tree community dominated by:
	open sphagnum mat or bog dominated by:
	sedge meadow/wet prairie community dominated by:
	other (explain):

B. Other plant species identified during site visit:

Refer to wetland delineation report prepared by Natural Resources Consulting, Inc. dated December 1, 2005.

III. SOILS

A. SCS Soil Map classification:

B. Field description:

_____ Organic (histosol)? If so, is it a muck or a peat?

X_____ Mineral soil?

- Mottling, gleying, sulfidic materials, iron or manganese concretions, organic streaking (bold those that apply)?
- Soil Description: _____
- Depth of mottling/gleying: _____
- Depth of A Horizon _____
- Munsell Color of matrix and mottles

-Matrix below the

A horizon (10" depth): _____

-Mottles:

IV. SURROUNDING LAND USES

A. What is the estimated area of the wetland watershed in acres? 10-20

B. What are the surrounding land uses?

LAND-USE	ESTIMATED % OF WETLAND WATERSHED
Developed (Industrial/Commercial/Residential)	
Agricultural/cropland	85
Agricultural/grazing	
Forested	
Grassed recreation areas/parks	
Old field	
Highways or roads	
Other (specify)	15 (Wetland)

V. SITE SKETCH

Floral Diversity

1. Y N Does the wetland support a variety of native plant species (i.e. not a monotypic stand of cattail or giant reed grass and/or not dominated by exotic species such as reed canary grass, brome grass, buckthorn, purple loosestrife, etc.)?
2. Y N Is the wetland plant community regionally scarce or rare?

Wildlife and Fishery Habitat

1. List any species observed, evidenced (e.g. tracks, scat, nest/burrow, calls), or expected to utilize the wetland:

White tailed deer, small mammals, song birds

2. Y N Does the wetland contain a number of diverse vegetative cover types and a high degree of interspersed of those vegetation types?
3. Y N Is the estimated ratio of open water to cover between 30 and 70 percent? What is the estimated ratio?
4. Y N Does the surrounding upland habitat likely support a variety of animal species?
5. Y N Is the wetland part of or associated with a wildlife corridor or designated environmental corridor?
6. Y N Is the surrounding habitat and/or the wetland itself a large tract of undeveloped land important for wildlife that require large home ranges (e.g. bear, woodland passerines)?
7. Y N Is the surrounding habitat and/or the wetland itself a relatively large tract of undeveloped land within an urbanized environment that is important for wildlife?
8. Y N Are there other wetland areas near the subject wetland that may be important to wildlife?
9. Y N Is the wetland contiguous with a permanent waterbody or periodically inundated for sufficient periods of time to provide spawning/nursery habitat for fish?
10. Y N Can the wetland provide significant food base for fish and wildlife (e.g. insects, crustaceans, voles, forage fish, amphibians, reptiles, shrews, wild rice, wild celery, duckweed, pondweeds, watermeal, bulrushes, bur reeds, arrowhead, smartweeds, millets)?
11. Y N Is the wetland located in a priority watershed/township as identified in the Upper Mississippi and Great Lakes Joint Venture of the North American Waterfowl Management Plan?
12. Y N Is the wetland providing habitat that is scarce to the region?

FUNCTIONAL ASSESSMENT

The following assessment requires the evaluator to examine site conditions that provide evidence that a given functional value is present and to assess the significance of the wetland to perform those functions. Positive answers to questions indicate the presence of factors important for the function. The questions are not definitive and are only provided to guide the evaluation. After completing each section, the evaluator should consider the factors observed and use best professional judgement to rate the significance. The ratings should be recorded on page 1 of the assessment.

Special Features / RED FLAGS

1. Y N Is the wetland in or adjacent to an area of special natural resource interest (NR 103.04, Wis. Adm. Code)? If so, check those that apply:
 - a. Cold water community as defined in 5. NR 102.04(3)(b), Wis. Adm. Code, (including trout streams, their tributaries, and trout lakes);
 - b. Lakes Michigan and Superior and the Mississippi River;
 - c. State or federal designated wild and scenic river;
 - d. Designated state riverway;
 - e. Designated state scenic urban waterway;
 - X f. Environmentally sensitive area or environmental corridor identified in an area-wide water quality management plan, special area management plan, special wetland inventory study, or an advanced delineation and identification study;
 - g. Calcareous fen;
 - h. State park, forest, trail or recreation area;
 - i. State and federal fish and wildlife refuges and fish and wildlife management areas;
 - j. State or federal designated wilderness area;
 - k. Designated or dedicated state natural area;
 - l. Wild rice water listed in ch. NR 19.09, Wis. Adm. Code;
 - m. Surface water identified as an outstanding or exceptional resource water in ch. NR 102, Wis. Adm. Code.
2. Y N According to the Natural Heritage Inventory (Bureau of Endangered Resources) or direct observations, are there any rare, endangered, or threatened plant or animal species in, near, or using the wetland or adjacent lands? If so, list the species of concern:

Refer to NHI letter.

3. Y N Is the project located in an area that requires a State Coastal Zone Management Plan consistency determination?

Flood and Stormwater Storage/Attenuation

1. Y N Are there **steep slopes**, large impervious areas, or areas of severe overgrazing within the watershed (bold those that apply)?
2. Y N Does the wetland significantly reduce runoff velocity due to its size, configuration, braided flow patterns, or vegetation type and density?
3. Y N Does the wetland show evidence of flashy water level responses to storm events (debris marks; erosion lines, stormwater, inputs; channelized inflow)?
4. Y N Is there a natural feature or human-made structure impeding drainage from the wetland that causes backwater conditions?
5. Y N Considering the size of the wetland area in relation to the size of its watershed, at any time during the year is water likely to reach the wetland's storage capacity (i.e. the level of easily observable wetland vegetation)? (For some cases where greater documentation is required, one should determine if the wetland has capacity to hold 25% of the runoff from a 2 year-24 hour storm event.)
6. Y N Considering the location of the wetland in relation to the associated surface water watershed, is the wetland important for attenuating or storing flood or stormwater peaks (i.e. is the wetland located in the mid or lower reaches of the watershed)?

Water Quality Protection

1. Y N Does the wetland receive **overland flow** or direct discharge of stormwater as a primary source of water (circle that which applies)?
2. Y N Do the surrounding land uses have the potential to deliver significant nutrient and/or sediment loads to the wetland?
3. Y N Based on your answers to the flood/stormwater section above, does the wetland perform significant flood/stormwater attenuation (residence time to allow settling)?
4. Y N Does the wetland have significant vegetative density to decrease water energy and allow settling of suspended materials?
5. Y N Is the position of the wetland in the landscape such that run-off is held or filtered before entering a surface water?
6. Y N Are algal blooms, heavy macrophyte growth, or other signs of excess nutrient loading to the wetland apparent (or historically reported)?

Shoreline Protection

1. Y N Is the wetland in a lake fringe or riverine setting? If NO, STOP and enter "not applicable" for this function. If YES, then answer the applicable questions.
2. Y N Is the shoreline exposed to constant wave action caused by a long wind fetch or boat traffic?
3. Y N Is the shoreline and shallow littoral zone vegetated with submerged or emergent vegetation in the swash zone that decrease wave energy or perennial wetland species that form dense root mats and/or species that have strong stems that are resistant to erosive forces?
4. Y N Is the stream bank prone to erosion due to unstable soils, land uses, or ice floes?
5. Y N Is the stream bank vegetated with densely rooted shrubs that provide upper bank stability?

Groundwater Recharge and Discharge

1. Y N Related to discharge, are there observable (or reported) springs located in the wetland, physical indicators of springs such as marl soil, or vegetation indicators such as watercress or marsh marigold present that tend to indicate the presence of groundwater springs?
2. Y N Related to discharge, may the wetland contribute to the maintenance of base flow in a stream?
3. Y N Related to recharge, is the wetland located on or near a groundwater divide (e.g. a topographic high)?

Aesthetics/Recreation/Education and Science

1. Y N Is the wetland visible from any of the following kinds of vantage points: roads, public lands, houses, and/or businesses? (bold all that apply.)
2. Y N Is the wetland in or near any population centers?
3. Y N Is any part of the wetland in public or conservation ownership?
4. Y N Does the public have direct access to the wetland from public roads or waterways? (bold those that apply.)

Aesthetics/Recreation/Education and Science (continued)

5. Is the wetland itself relatively free of obvious human influences, such as:

- | | |
|--|---|
| a. <u>Y</u> <u>N</u> Buildings? | e. <u>Y</u> <u>N</u> Pollution? |
| b. <u>Y</u> <u>N</u> Roads? | f. <u>Y</u> <u>N</u> Filling? |
| c. <u>Y</u> <u>N</u> Other structures? | g. <u>Y</u> <u>N</u> Dredging/draining? |
| d. <u>Y</u> <u>N</u> Trash? | h. <u>Y</u> <u>N</u> Domination by non-native vegetation? |

6. Is the surrounding viewshed relatively free of obvious human influences, such as:

- a. Y N Buildings?
- b. Y N Roads?
- c. Y N Other structures?

7. Y N Is the wetland organized into a variety of visibly separate areas of similar vegetation, color, and/or texture (including areas of open water)?

8. Y N Does the wetland add to the variety of visibly separate areas of similar vegetation, color, and/or texture (including areas of open water) within the landscape as a whole?

9. Does the wetland encourage exploration because any of the following factors are present:

- a. Y N Long views within the wetland?
- b. Y N Long views in the viewshed adjacent to the wetland?
- c. Y N Convoluted edges within and/or around the wetland border?
- d. Y N The wetland provides a different (and perhaps more natural/complex) kind of environment from the surrounding land covers?

10. Y N Is the wetland currently being used for (or does it have the potential to be used for) the following recreational activities? (Check all that apply.)

Activity	Current Use	Potential Use
Nature study/photography		
Hiking/biking/skiing		
Hunting/fishing/trapping		
Boating/canoeing		
Food harvesting		
Others (list)		

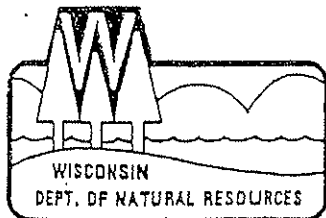
11. Y N Is the wetland currently being used, and/or does it have the potential for use for educational or scientific study purposes (bold that which applies)?



Attachment 3

Veolia Emerald Park Landfill

Regulatory Correspondence



Carroll D. Besadny
Secretary

State of Wisconsin \ DEPARTMENT OF NATURAL RESOURCES

101 South Webster Street
Box 7921
Madison, Wisconsin 53707
TELEPHONE 608-266-2621
TELEFAX 608-267-3579
TDD 608-267-6897

December 9, 1992

FILE CODE:

Mr. David W. Neeb
Mr. Michael P. Dunn
Davis & Kuelthau, S.C.
111 East Wisconsin Avenue
Milwaukee, WI 53202

Mr. William Guis
Mr. William Roush, Jr.
Friebert, Finerty, & St. John
Two Plaza East, Suite 1250
Milwaukee, WI 53202

Mr. Charles Leveque
Department of Natural Resources
P.O. Box 7921
Madison, WI 53707

Dear Gentleman:

Enclosed are Findings of Fact, Conclusions of Law, Determination of Need and Design Capacity, Conditional Feasibility Determination, and Grant of Exemptions for the proposed Emerald Park Landfill, City of Muskego, Waukesha County, Wisconsin; Contested Case #1H-90-01.

Sincerely,

Paul P. Didier, P.E., Director
Bureau of Solid & Hazardous Waste Management

cc: Patrick Curie - Division of Hearing and Appeals
C.D. Besadny - AD/5
City of Muskego
Franklin Schultz - SED
Solid Waste Management Section - SW/3

Bartels site, without adversely impacting wetlands associated with those sites. However, based on the record, the Department has determined that the Bartels site is not a practicable alternative under s. NR 103.08(3)(b), Wis. Adm. Code, because it is located in a sand and gravel environment. Leakage from a landfill site located in such an environment would result in a significant adverse environmental consequence to the aquifer system.

17. As part of the evaluation of potential practicable alternatives, alternative landfill footprint locations and configurations on the parcel of land owned by the applicant were considered. The applicant has demonstrated that a comparable landfill would have an adverse impact on wetlands at each of the alternative locations and configurations on the applicant's property.

18. The following existing landfills are providing waste disposal capacity for municipal refuse generated in Milwaukee and Waukesha Counties:

- BFI Troy Area Landfill
- Waste Management Stone Ridge Landfill
- Waste Management Metro Landfill
- Waste Management Parkview Landfill
- Land Reclamation Landfill

The existing approved capacities of these landfills provide less than 6 years of municipal refuse disposal capacity for Milwaukee and Waukesha Counties. It is reasonable to anticipate that it would take 5 to 7 years to obtain an initial license for a new landfill to serve Milwaukee and Waukesha Counties. The applicant has demonstrated that, based upon costs and logistics, these landfills are not a practicable alternative to the proposed facility.

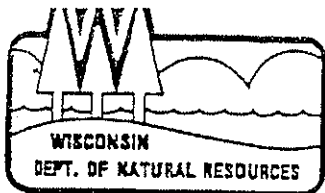
19. The applicant has demonstrated that there are no practicable alternatives, as defined in section NR 103.07(1), Wis. Adm. Code, to the proposed landfill, which would not adversely impact wetlands, and would not result in other significant environmental consequences. Because of this, the Department must consider whether the proposed project will result in significant adverse environmental consequences, including significant adverse impacts on wetland functional values.

20. The approximately 2.5 acres of wetlands that would be filled by the proposed landfill are without significant wetland functional values. The proposed landfill would not have a significant adverse impact on groundwater or surface water recharges to the wetland areas situated to the west of the proposed landfill, if the facility is designed, constructed, and operated in accordance with the conditions set forth below. Therefore, based upon the factors listed in section NR 103.08(3)(b), Wis. Adm. Code, the proposed landfill will not cause a significant adverse impact on wetlands, and will not result in significant adverse impacts to the functional values of the affected wetlands, significant adverse impacts to water quality, or other significant adverse environmental consequences.

21. The proposed landfill will not have a significant adverse impact on any critical habitat areas.

Attachment 4

Orchard Ridge Recycling and Disposal Facilities - Regulatory Correspondence



George E. Meyer
Secretary

State of Wisconsin \ DEPARTMENT OF NATURAL RESOURCES

101 South Webster Street
Box 7921
Madison, Wisconsin 53707
TELEPHONE 608-255-2521
TELEFAX 608-257-3579
TDD 608-257-6897

JUL 02 1993

Mr. Richard Ancelet, Vice President
& Regional Manager
Waste Management of Wisconsin, Inc.
Regional Satellite Office - Milwaukee
W124 N8925 Boundary Road
Menomonee Falls, WI 53051

FILE REF: FID# 268262940
Waukesha
SW
Approval

SUBJECT: Feasibility Determination for the Proposed Orchard Ridge
Recycling and Disposal Facility, Village of Menomonee Falls
Monitoring ID #03360

Dear Mr. Ancelet:

We have determined that your proposed Orchard Ridge municipal solid waste landfill expansion is feasible and should provide for satisfactory solid waste disposal. We have also determined that an Environmental Impact Statement is not needed for this facility.

Please read carefully the attached determination which includes the conditions of feasibility approval. These conditions include revisions to the proposed monitoring plan to implement new federal groundwater monitoring requirements under 40 CFR Subpart E of Part 258.

You may now submit your Plan of Operation in accordance with chs. NR 500 through 520, Wis. Adm. Code, the feasibility report and the conditions of feasibility listed in the attached determination. However, this determination of feasibility does not guarantee that we will approve your plan of operation, or license the proposed facility.

If you have questions regarding this approval, please contact Tim Kessenich, Hydrogeologist, at (608) 264-6018, Susan Fisher, Environmental Engineer, at (608) 267-9387 or Roger Klett, Solid Waste Investigator, at (414) 961-2707.

Sincerely,

Lakshmi Sridharan

Lakshmi Sridharan, Ph.D., P.E., Chief
Solid Waste Management Section
Bureau of Solid & Hazardous Waste Management

LS:TAK

cc: Roger Klett - SE District



Paul Huebner - SW/3
Susan Fisher - SW/3
James Pardee - EA/6
Dave Lindorff - WR/2
Roger Gerhardt - WS/2
SEWRPC
Mike Carlton - Von Briesen & Purtell
Patti Cronin - Waste Facility Siting Board
Warzyn, Inc.

the landfill will initially be visible over the berm at a distance of approximately 500 feet from the highest point on State Trunk Highway 145. The screening effectiveness will improve as trees planted on the berm mature. The landscaping plan includes the use of refuse core berms during construction of the landfill which reduces the length of time that landfill construction equipment and operations are visible.

Topography and Drainage: The proposed Orchard Ridge landfill site is in the Menomonee River drainage basin. Surface water presently drains both east and west from a drainage divide along the western edge of the site. West of the site an unnamed tributary of the Menomonee River flows in a southerly direction. Most of the drainage from the site is towards the east, to a series of drainage ditches and basins constructed for the Omega Hills and Parkview landfills. These ditches converge to a single ditch which eventually discharges to the Menomonee River approximately 2 miles south of the site.

Wetlands: Development of the proposed landfill would destroy approximately 3-1/2 acres of severely disturbed, low quality wetland. WMWI has submitted information required under Chapter NR 103, Wis. Adm. Code, Water Quality Standards for Wetlands. The Department has determined that there is no practicable alternative to building the proposed facility and that loss of the 3-1/2 acres of low quality wetland would not have a significant impact on wetland functional values, water quality or other significant environmental consequences.

Site Geology: The proposed site is located in an area underlain by unconsolidated glacial deposits consisting of silty clay till interbedded with layers of silt, silty sand, and sandy gravel. Silty clay till of the Oak Creek Formation is the uppermost unconsolidated unit at the site. The till is a lean clay with a mean sand content of 10%, a mean silt content of 50% and a mean clay content of 38%. Glacio-fluvial sand and gravel deposits are interbedded with the till and form a nearly continuous layer at a depth of from 25 to 40 feet below the proposed sub-base grade.

The depth to bedrock varies from 40 feet below the proposed subbase grade in the northwest corner of the site to approximately 90 feet below the subbase grade in the southeast corner of the site. The uppermost bedrock unit is Dolomite of Silurian Age, which in the Menomonee Falls area has an estimated total thickness of about 360 feet. The Silurian Dolomite is the source of water for most wells in the area. The Silurian Dolomite is underlain by the Maquoketa Shale of Ordovician Age. The Maquoketa Shale is approximately 90 feet thick and yields little water to wells thus forming an aquitard.

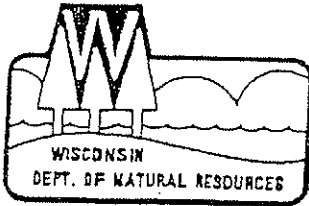
Formations below the Maquoketa Shale consist of Dolomite and Sandstone of Cambrian and Ordovician age. These rock formations are an important aquifer for some municipal and industrial wells in the area. Beneath the Cambrian-Ordovician formations are Precambrian igneous and metamorphic rocks which do not yield significant quantities of water.

Site Hydrogeology: The water table is encountered in the unconsolidated deposits from 1 to 31 feet below the land surface. A north-south groundwater divide exists along the topographic high on the western side of the site. Within the silty clay till unit the water table surface slopes to the west and



Attachment 5

Consolidated Papers Regulatory Correspondence



State of Wisconsin \ DEPARTMENT OF NATURAL RESOURCES

Tommy G. Thompson, Governor
George E. Meyer, Secretary

PO Box 7921
101 South Webster Street
Madison, Wisconsin 53707-7921
DNR TELEPHONE 608-288-2821
DNR FAX 608-287-3579
DNR TDD 608-287-6897
SOLID WASTE MGMT 608-288-2111
SOLID WASTE FAX 608-287-2768

DATE: SEP 05 1996

F. Andrew Gilbert, Jr.
Corporate Environmental Engineer
Consolidated Papers, Inc.
P.O. Box 8050
Wisconsin Rapids, WI 54495-8050

FILE REF: FID# 772039950
Wood Co.
SW
Correspondence

SUBJECT: Feasibility Determination for the Proposed Consolidated Papers, Inc., Water Quality Center Landfill Expansion (#2488) - City of Wisconsin Rapids, Wood County

Dear Mr. Gilbert:

I am pleased to inform you that we have determined that your proposed papermill sludge landfill is feasible and should provide for satisfactory disposal of these wastes. We have also determined that an Environmental Impact Statement is not needed for this site. Please read carefully the attached determination which lists the conditions of feasibility.

This favorable determination entitles you to submit a plan of operation which meets the conditions set forth in the feasibility report, the attached determination and Chapter NR 514, Wis. Adm. Code. This determination does not guarantee that we will approve a plan of operation. When preparing your plan of operation, we advise you to carefully review the requirements of the NR 500 through 520, Wis. Adm. Codes.

There have been several changes to ch. NR 504, Wis. Adm. Code, published June 1996, which you should be aware of in developing the plan of operation. There have been modest reductions in the acceptable Atterberg limits values, which are different from those proposed in the feasibility report. The requirements for the sand drainage blanket permeability have been altered, from 10^{-3} cm/sec to 10^{-2} cm/sec, with some additional requirements for protecting the geomembrane component of the liner if the drainage blanket gradation is large enough.

Our understanding of the feasibility design is that the final cover proposed for the lateral expansion will also be applied to the closure of Areas 3 to 5 as well. The plan of operation should be explicit on this issue and should include details for junctions with the final covers already installed on Areas 1 and 2.

CPI has previously raised the issue of whether gas monitoring probes are necessary at the Water Quality Center landfill, due to the shallow groundwater, liner systems, and soil types around the landfill. We agree that

*Quality Natural Resources Management
Through Excellent Customer Service*



F. Andrew Gilbert, Jr., CPI-WQC Feasibility Determination

2.

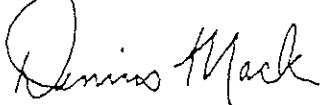
the utility of gas probes at this location is questionable. If CPI wants to eliminate gas monitoring at this landfill, a request for an exemption, with supporting documentation, should be included in the plan of operation.

As you may be aware, landfill owners must check for and report any exceedances to Wisconsin's groundwater standards. We have granted groundwater quality exemptions for specific monitoring wells where elevated concentrations of certain parameters have been detected. Alternative concentration limits will need to be established for these wells and parameters. To determine what these alternative concentration limits shall be, this approval requires that more background data be collected.

The monitoring data for this site must be reported in an electronic format specified by the Department. The Department mailed out to all landfill owners and operators, information on the electronic reporting of data in a letter dated July 30, 1996.

If you have any questions regarding this determination, please contact Joe Traynor of our plan review staff at (608) 267-3534, or Mike Miller of our North Central District Wisconsin Rapids Office at (715) 421-7821.

Sincerely,



Dennis Mack, P.E., Chief
Technical Support Section
Bureau of Waste Management

Attachments: Project Summary and Feasibility Determination

cc: Tom Jerow, Rhinelander Office - NR
Mike Miller, Wisconsin Rapids Office
Dave Lundberg - WCR
Paul Huebner - WA/3
Bob Grefe - WA/3
Patti Cronin - Waste Facility Siting Board
Charles Leveque - LS/5
Mike Lemcke/Steve Karklins - DG/2

A large portion of the proposed site has internal drainage to wetland areas within the proposed limits of filling. Ditches which are present near the north and west edges of the proposed facility drain surface waters to the south into Cranberry Creek. The Wisconsin River is within one mile of the site, however, Cranberry Creek diverts surface waters to cranberry bogs to the southwest. These cranberry bogs drain to the Yellow River.

There are approximately 26 acres of wetlands which will be filled as a result of this expansion. In accordance with ch. NR 103, Wis. Adm. Code, CPI has demonstrated to the department that there is no practicable alternative to the proposed landfill expansion, and that the proposed project will not result in significant adverse impacts on wetland functional values. CPI has provided the department with a practicable alternatives analysis and a significant adverse impacts analysis. Based on the information provided in these reports, the Department has concluded that the requirements of ch. NR 103, Wis. Adm. Code have been met. No practicable alternative is available that would avoid wetland impacts. Also, due to the low functional value of the affected wetlands, and the regional abundance of these wetlands, the project will not result in either significant adverse impacts to water quality, or other significant adverse environmental impacts.

Regional and Site Specific Geology and Hydrogeology: In this area the thickness of unconsolidated materials overlying the bedrock surface ranges from two to eleven feet. The unconsolidated materials are composed of a peaty topsoil overlying sandy glacial alluvium, which grades into a weathered bedrock. Bedrock beneath the proposed site is composed of Precambrian granite and diorite.

Regional groundwater flow is to the south with discharge into the Wisconsin River. Locally much of the groundwater flows to the extraction system south of existing Area 1 or is collected in the gradient control network beneath Areas 2 through 5. Depth to groundwater at the site is generally less than five feet.

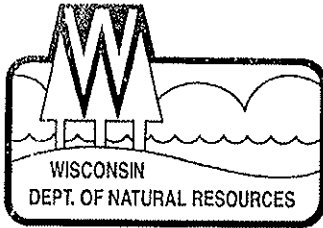
Baseline groundwater quality sampling results for indicator parameters, public health and welfare parameters and volatile organic compounds (VOCs) for the proposed landfill were provided as part of the feasibility report. In one or more wells installed at the site the concentrations of cadmium, nitrate+nitrite, iron, and manganese were detected at levels greater than or equal to the preventive action limit (PAL) or enforcement standard (ES) established in Ch. NR 140, Wis. Adm. Code. The department is granting an exemption under s. NR 140.28, Wis. Adm. Code for the baseline exceedances at these monitoring wells. There will need to be some additional sampling and analysis for the compounds and wells where the calculation of an alternative concentration limit will be required.

Proposed Design: Development of the proposed expansion would be in two approximately equally sized phases, Area 6 and Area 7. Filling of both areas would include overlapping the fill area onto existing Areas 1 and 3 to 5. Subbase grades of the liner range from seven feet above to ten feet below the existing land surface. Final grades would be up to 106 feet above the existing topography.



Attachment 6

Ashley Furniture Correspondence



State of Wisconsin \ DEPARTMENT OF NATURAL RESOURCES

Jim Doyle, Governor
Scott Hassett, Secretary

West Central Region Headquarters
1300 W Clairemont
Box 4001
Eau Claire, Wisconsin 54702
Telephone 715-839-3700
FAX 715-839-6076

September 29, 2005

IP-WC-2005-62-0291BT
Corps # 2005-3295-BCN

Ashley Furniture Industries, Inc.
C/O Bill Koslo
One Ashley Way
Arcadia, WI 54612

Dear Mr. Koslo:

The Department has completed review of your proposal to expand your furniture manufacturing facility, and we have determined that your project meets state standards. Enclosed is your permit that approves your project and lists the conditions which must be followed. Please read your permit carefully so that you are fully aware of what is expected of you.

You will find that we have placed specific permit conditions which assure your project can be completed while protecting the public interests in our waters. If you have any question about the content or intent of any of the conditions please contact me so we can discuss.

As with all of our waterway and wetland permits, we are authorizing this with the understanding that you do not have additional alterations planned. We believe that this permit authorizes the maximum impact allowable by law and that future wetland fills would exceed state cumulative impact standards and, therefore will not be permitted.

If you have any questions, please contact me and I look forward to hearing from you before your project begins.

Sincerely,

Daniel Helsel
Water Basin Leader
715-284-1431

cc: Bruce Norton, ACOE
Kevin Lien, Trempealeau County Zoning, P.O. Box 67, Whitehall, WI 54773
Ryan Sheehy, City of Arcadia, 203 West Main Street, WI 54612
Cathy Garra, USEPA, 77 West Jackson Blvd, Chicago, IL 60604-3590

- Permit Issuance & Water Quality Certification -
Docket # IP-WC-2005-62-0291BT

Ashley Furniture Industries, Inc., One Ashley Way, Arcadia, WI 54612, has filed an application with the Wisconsin Department of Natural Resources for a permit to relocate 1521 feet of an unnamed waterway, grade in excess of 10,000 square feet on the banks of two unnamed streams (one tributary to French Creek and one tributary to the Trempealeau River), create a retention basin within 500 feet of a waterway, construct 7 ditch plugs, and water quality certification under Section 401 of the Federal Clean Water Act, Section 281.15 and 281.37, Wisconsin Statutes, and Chapter NR 299, Wisconsin Administrative Code.

The project is located in the Section 1, Township 20 North, Range 10 West, Section 6, Township 20N, Range 9W, and Section 31 and Section 32, Township 21 North, Range 9 West, in the City of Arcadia, Trempealeau County. The property address is One Ashley Way. The project consists of expansion of a manufacturing facility and construction of a wetland mitigation site. The mitigation site for this project is located in Section 10, Township 20 North, Range 8 West and is in the upper reaches of the French Creek watershed.

PERMIT

1. You must notify Daniel Helsel at phone 715-284-1431 before starting construction and again not more than 5 days after the project is complete.
2. You must complete the plant expansion project as described on or before September 15, 2007 and must complete the mitigation portion of the project by the time lines set forth in the mitigation plan. If you will not complete the project by this date, you must submit a written request for an extension prior to the expiration date of the permit. Your request must identify the requested extension date and the reason for the extension. A permit extension may be granted, for good cause, by the Department. You may not begin or continue construction after the original permit expiration date unless the Department grants a new permit or permit extension in writing.
3. This permit does not authorize any work other than what you specifically describe in the application and plans submitted with the application and as modified by the conditions of this permit, including the following construction plans:
 - Stormsewer, watermain and access road, Davy Engineering (July 13, 2005)
 - Stormwater and erosion control plan, Davy Engineering (July, 2005)
 - Erosion control and grading plan for railroad siding area, (September 23, 2005)
 - Erosion control and grading plan for Plant 4 expansion, (July 13, 2005)
 - Wetland compensation site plan, NRC, Inc. (September 29, 2005)
4. This permit authorizes you to fill 9.078 acres of wetland at the Plant 4 expansion site and convert 2.10 acres of wetland into a stormwater treatment and conveyance system. This permit authorizes you to fill 2.75 acres of wetland for a railroad siding and modular container storage area and convert 0.4 acres of wetland into a stormwater treatment and conveyance system for the siding facility.
5. If you wish to alter the project or permit conditions, you must first obtain written approval of the Department.

6. You are responsible for obtaining any permit or approval that may be required for your project by local zoning ordinances or by the U.S. Army Corps of Engineers before starting your project.
7. Upon reasonable notice, you shall allow access to your project site during reasonable hours to any Department employee who is investigating the project's construction, operation, maintenance or permit compliance.
8. The Department may modify or revoke this permit if the project is not completed according to the terms of the permit, or if the Department determines the activity is detrimental to the public interest.
9. You must have a copy of the permit and approved plan readily available at the project site at all times until the project is complete.
10. Your acceptance of this permit and efforts to begin work on this project signify that you have read, understood and agreed to follow all conditions of this permit.
11. Written concerns related to substantive standards in statutes and administrative code were submitted by Wisconsin Wildlife Federation and Midwest Environmental Advocates on behalf of the Wisconsin Wetland Association. Wisconsin Wildlife Federation has withdrawn its objections and the Wisconsin Wetlands Association has stated it will not appeal this decision.
12. You, your agent, and any involved contractors or consultants may be considered a party to the violation pursuant to Section 30.292, Wis. Stats., for any violations of Chapter 30, Wisconsin Statutes or this permit.
13. Construction shall be accomplished in such a manner as to minimize erosion and siltation into surface waters. Erosion control measures such as silt fence and straw bales must meet or exceed the technical standards in Wisconsin.
14. You must maintain a log of the erosion control inspections, repairs made, and rain events. This must be made available to Department personnel upon request and must remain on the project site at all times work is being performed.
15. You must maintain a log of wetland restoration activities undertaken at the mitigation site. You must comply with all work and report schedules in the approved mitigation plan.
16. You must supply a copy of this permit to every contractor associated with this project.
17. The applicant shall allow the Wisconsin Department of Natural Resources reasonable entry and access to the project sites to inspect the discharge for compliance with the applicable laws and certification.
18. Ashley Furniture Industries has agreed to convey a conservation easement to the Department on approximately 10 acres of existing wetland in the vicinity of the project site. Ashley has agreed to record this conservation easement to the Department within 45 days from the date of permit issuance.
19. Authorization hereby granted by the Department is not transferable.

20. All remaining wetlands adjacent to the manufacturing facility identified by the department shall not be altered by human manipulation, without prior written authorization from the Secretary of the Department of Natural Resources. Human manipulation includes such activities as dredging, tiling, ditching, filling, burning, dewatering and mowing.
21. The Department has evaluated this proposal and determined that this activity will meet the standards found in Section NR 299.04, Wis. Admin. Code, and certification is granted. Additional wetland adverse impacts or filling is not projected at the Arcadia facility based upon information submitted by Ashley. Future wetland fills or alterations at this site would constitute a significant cumulative adverse impact and therefore would not meet state standards.
22. The original permit must be recorded with the Trempealeau County Registry of Deeds referencing the property owner and legal description. A receipt of the recording transaction must be provided to the Department within 60 days of the permit issuance.
23. Ashley agrees that, not less than 30 days prior to the expiration of the Construction Bond, Ashley will deliver to the Department a Monitoring Bond binding itself, and its successors and assigns, to perform the monitoring and maintenance requirements under the Mitigation Plan for a term of twelve (12) years.
24. Ashley shall post with the Department another performance bond (the "Monitoring Bond") in the amount of Four Hundred Sixty-Four Thousand Five Hundred and 00/100 (\$464,500.00) Dollars, lawful money of the United States of America, for the monitoring and maintenance phases of the compensatory wetland mitigation project in accordance with the Mitigation Plan.
25. Ashley further acknowledges and agrees that if the Monitoring Bond is not provided and accepted by the Department, which acceptance shall not be unreasonably withheld, conditioned, or delayed, the Construction Bond will remain in effect.
26. The mitigation project must be constructed, maintained, and monitored in accordance with the final revised copy of the compensation site plan titled "Wetland Compensation Site Plan, Ashley Furniture Industries, Inc., Town of Ettrick, Trempealeau County, Wisconsin" prepared by Natural Resources Consulting Inc. and revised on July 22, 2005, September 13, 2005 and September 29, 2005 (Compensation Site Plan). The project must comply with all other DNR permit conditions. Any modifications to the Compensation Site Plan must be reviewed and approved by DNR.
27. Applicant will provide a signed performance bond with terms approved by DNR within 30 days to the DNR office of Julia Wilcox- FH/4, Wisconsin DNR, Box 7921, Madison, WI 53707.
28. Applicant will provide a signed conservation easement with terms approved by DNR within 30 days to the DNR office of Julia Wilcox- FH/4, Wisconsin DNR, Box 7921, Madison, WI 53707.
29. The compensatory mitigation project must be implemented prior to or concurrent with the wetland filling project.
30. Grading, pond construction and structures on the mitigation site shall be constructed in accordance with all applicable state laws. Erosion control and stormwater management shall also meet applicable state standards.

31. Applicant will assure that on-site inspection is provided during the construction of the mitigation site by a qualified wetland ecologist who is familiar with the approved plan.
32. Applicant will submit an as-built report within one month of completion of initial seeding and planting of the compensation site to the DNR offices of Dan Helsel, WDNR West Central Region, and Pat Trochlell - FH/4, Wisconsin DNR, Box 7921, Madison, WI 53707. The as-built report must include information required by both the Compensation Site Plan and the February 2002 Guidelines for Wetland Compensatory Mitigation in Wisconsin.
33. After submittal of the as-built report, the applicant will monitor and maintain the compensation site for ten years in accordance with the approved Compensation Site Plan. Monitoring reports must be submitted to the DNR offices of Dan Helsel or the current DNR Water Program Supervisor and of Pat Trochlell or the current Wetland Compensatory Mitigation Coordinator in Madison by the end of the first, second, third, fifth, seventh, ninth, and tenth monitoring year.
34. If at the end of the tenth year of monitoring and maintenance, the compensation project is unsuccessful in meeting its performance standards outlined in the site compensation plan, either the monitoring and maintenance period must be extended until the performance standards are met or an alternative mitigation site must be developed that meets DNR approval.

FINDINGS OF FACT

1. Ashley Furniture Industries, Inc., One Ashley Way, Arcadia, WI 54612, has filed an application with the Wisconsin Department of Natural Resources for a permit to relocate 1521 feet of an unnamed waterway, grade in excess of 10,000 square feet on the banks of two unnamed streams (one tributary to French Creek and one tributary to the Trempealeau River), create a retention basin within 500 feet of a waterway, construct 7 ditch plugs, and water quality certification under Section 401 of the Federal Clean Water Act, Section 281.15 and 281.37, Wisconsin Statutes, and Chapter NR 299, Wis. Adm. Code. The project is located in the Section 1, Township 20 North, Range 10 West, Section 6, Township 20N, Range 9W, and Section 31 and Section 32, Township 21 North, Range 9 West, in the City of Arcadia, Trempealeau County. The mitigation site for this project is located in Section 10, Township 20 North, Range 8 West and is in the upper reaches of the French Creek watershed.
2. The project will consist of the expansion of an existing furniture manufacturing facility and construction of a wetland mitigation site. The furniture facility expansion requires the relocation of 1521 feet of an unnamed, navigable watercourse, construction of water quality protection features, filling of 9.078 acres of wetland for the plant 4 expansion and the alteration of 2.10 acres of wetland as part of a stormwater management system and filling 2.75 acres of wetland for the railroad siding and modular container storage area and the alteration of 0.4 acres of wetland as part of a stormwater management system. The mitigation site requires the construction of a retention basin, grading, and the construction of 7 ditch plugs, prescribed vegetative plantings, and shallow scrapes.
3. The Department has completed an investigation of the project and mitigation site and has evaluated the project. The Department has completed an environmental assessment of this project and has determined that an environmental impact statement is not needed.

4. The project purpose is to construct the necessary improvements and expand an existing furniture manufacturing plant in order to maintain its viability and continued existence. The project is not wetland dependent.
5. The Department has completed a review of analysis of eleven different alternatives ranging from no wetland impact to 25.60 acres of wetland impact and has determined that there is not a practicable alternative that would avoid and minimize adverse impacts to wetlands, after taking into consideration cost, available technology and logistics in light of maintaining the Ashley Arcadia plant as a viable, competitive facility.
6. The Department has evaluated the significance of the functional values of the wetlands and determined that, in consideration of the potential wetland functional values provided by the mitigation project, the project will not result in considerable and important impacts on the quality of the human environment
7. The Department has evaluated the relocation of 1,521 feet of an unnamed, navigable watercourse and determined that there will be no detrimental effects on the flood flow capacity of the stream, impacts to adjacent riparian property owners or to the public interests associated with the watercourse. The stormwater plan is designed to control 88% of the suspended solid for a 2 year, 24 hour rain event and the flood flow capacity of the waterway will continue to be controlled by the City operated stormwater lift station.
8. The proposed project, if constructed in accordance with this permit will not adversely affect water quality, will not increase water pollution in surface waters and will not cause environmental pollution as defined in s. 283.01(6m), Wis. Stats. The stormwater and erosion control plans are designed to control surface water contaminants in accordance with NR 151 Wis. Adm. Code.
9. The Department has evaluated this proposal and determined that this activity will meet the standards found in Section NR 299.04, Wis. Admin. Code, and certification is granted. Additional wetland adverse impacts or filling is not projected for this site based upon Ashley submittal. Future wetland fills or alterations at this site would constitute a significant cumulative adverse impact and therefore would not meet state standards.
10. A public informational hearing pursuant 30.208 Wis. Stats, was held on August 16, 2005. One hundred and seventy-one public appearance slips were submitted in support of the project. Three people submitted appearance slips "as interest may appear" while six people submitted appearance slips that did not indicate a position. Thirty individuals requested to submit verbal comments at the public informational meeting.
11. The Department received 1187 email comments, approximately 59% in support of the project and 41%, a combination of "in opposition" or requesting addition information and justification. Specific substantive comments in opposition and requesting additional information were received from the Wisconsin Wildlife Federation and from Midwest Environmental Advocates, on behalf of the Wisconsin Wetland Association.
12. The Department of Natural Resources and the applicant have completed all procedural requirements and the project as permitted will comply with all applicable requirements of Sections 1.11, 30.19, 30.195, 281.15, and 281.37 Wisconsin Statutes and Chapters NR 102, 103, 117, 150, 299, 300, 310, 329, 341, 350, and 353 of the Wisconsin Administrative Code.

CONCLUSIONS OF LAW

1. The Department has authority under the above indicated Statutes and Administrative Codes, to issue a permit for the construction and maintenance of this project.

NOTICE OF APPEAL RIGHTS

If you believe that you have a right to challenge this decision, you should know that the Wisconsin statutes and administrative rules establish time periods within which requests to review Department decisions shall be filed. For judicial review of a decision pursuant to sections 227.52 and 227.53, Wis. Stats., you have 30 days after the decision is mailed, or otherwise served by the Department, to file your petition with the appropriate circuit court and serve the petition on the Department. Such a petition for judicial review shall name the Department of Natural Resources as the respondent.

To request a contested case hearing pursuant to section 227.42, Wis. Stats., you have 30 days after the decision is mailed, or otherwise served by the Department, to serve a petition for hearing on the Secretary of the Department of Natural Resources, P.O. Box 7921, Madison, WI, 53707-7921. The filing of a request for a contested case hearing is not a prerequisite for judicial review and does not extend the 30-day period for filing a petition for judicial review.

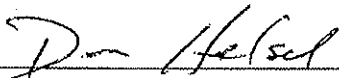
A request for contested case hearing must follow the form prescribed in section NR 2.05(5), Wis. Adm. Code, and must include the following information:

1. A description of the Department's action or inaction which is the basis for the request;
2. The substantial interest of the petitioner which is injured in fact or threatened with injury by the Department's action or inaction;
3. Evidence of legislative intent that this interest is not to be protected;
4. An explanation of how the injury to the petitioner is different in kind or degree from the injury to the general public caused by the Department's action or inaction;
5. That there is a dispute of material fact, and what the disputed facts are;
6. The statute or administrative rule other than s. 227.42, Wis. Stats., which accords a right to a hearing.

This notice is provided pursuant to section 227.48(2), Wis. Stats.

Dated at West Central Region Headquarters, Wisconsin on September 20, 2005.

STATE OF WISCONSIN DEPARTMENT OF NATURAL RESOURCES
For the Secretary

By 

Daniel Helsel
Water Basin Leader
Black-Buffalo-Trempealeau Water Basin

St. Paul District
U. S. Army Corps of Engineers

DEPARTMENT OF THE ARMY PERMIT
EVALUATION AND DECISION DOCUMENT

APPLICATION NUMBER: 2005-3295-BCN
APPLICANT: Ashley Furniture Industries, Inc.
PROJECT: Warehouse and rail yard expansion

PART I - INTRODUCTION

This document includes an environmental assessment, as required by the National Environmental Policy Act; the District Engineer's statement of findings, including a determination regarding compliance with the Section 404(b)(1) guidelines (if appropriate) and the need for an environmental impact statement; and the District Engineer's determination as to whether or not the project is contrary to the public interest. (NOTE: The Corps of Engineers permit regulations are at Title 33 of the Code of Federal Regulations (CFR), Parts 320 through 330.)

A public notice describing the project and its location is attached (Attachment A). However, the project was modified after the public notice was issued. The modification consists of 1) a reduction in the wetland fill impacts for the railroad siding track and container storage area from 3.26 acres to 2.75 acres, and 2) the reduction of the warehouse fill from 11.32 acres to 9.078 acres. However, the inclusion a 0.4-acre storm water pond associated with the siding area and a 2.1-acre storm-water retention pond adjacent to the warehouse, would result in 2.5 acres of adverse wetland impact. Therefore, the total wetland impacts have been reduced from 14.58 acres to 14.328 acres. The project drawings have been revised to show these modifications.

PART II - ENVIRONMENTAL ASSESSMENT

PROJECT PURPOSE.

The purpose of the project is to improve the efficiency of an existing furniture manufacturing facility.

PARTICIPANTS IN THE PUBLIC INTEREST REVIEW.

The public notice was sent to all known interested parties, including the appropriate Federal, State, and local agencies. A public notice mailing list is included in the permit file. A summary of comments follows:

U.S. Environmental Protection Agency (EPA). By letter dated July 27, 2005 (Attachment B), the EPA stated that they are concerned with the cumulative adverse impacts from past wetland fill (19+ acres) that were permitted at this site when added to the proposed wetland loss. These impacts include both the water quality and floodwater storage benefits provided by the wetlands and the Trempealeau River floodplain. They also stated a concern about how surface runoff

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from the project site would affect neighboring wetlands and the river. EPA stated that the proposed alternative, Q5, is the most cost efficient for the applicant and is in the mid-range for wetland impacts. The EPA objected to the issuance of the permit as described in the Public Notice. They stated that they would welcome additional information on the project and its alternatives followed by interagency discussions about its environmental impacts. In response to that letter, Ashley sent the EPA a copy of the Practicable Alternatives Analysis dated May 5, 2005, that was prepared for this project. By letter dated September 26, 2005 (Attachment C), EPA submitted further comments regarding the Ashley proposal. They still expressed concerns about traffic patterns associated with the various alternatives, floodplain impacts, storm water treatment, and the off-site, rather than on-site mitigation proposal. By letter dated September 28, 2005 (Attachment L), Ashley addressed the most recent issues raised by EPA.

U.S. Fish and Wildlife Service (FWS). By letter dated July 27, 2005 (Attachment D), the FWS stated that the proposed project is not water dependent and that more serious consideration of off-site storage options should be considered. Due to past wetland fills and possible future wetland impacts, the FWS recommend that the Corps conduct a cumulative impact analysis of these fills. They also noted that the proposed mitigation site is within the French Creek watershed, which is not the same as the watershed as the proposed impact area. The FWS stated that the proposed mitigation ratio of 2:1 is appropriate at a minimum. They recommended that an approved mitigation plan be included as a condition of any permit, with a requirement that construction of the mitigation site be completed within one year of issuance of the permit. They also recommended that a monitoring plan be included as a condition of the permit.

The FWS also noted that the list of federally listed threatened and endangered species as presented in the Public Notice was accurate. They stated that currently, there are no known federally listed threatened or endangered species or critical habitat present at the project site.

Wisconsin Department of Natural Resources (WDNR). No written comments were received from the WDNR. However, since the project impacts navigable waters of the state, the WDNR has state jurisdiction over the project and is conducting a separate review of the project.

State Historic Preservation Officer (SHPO). By letter dated July 27, 2005 (Attachment E), the Wisconsin Historical Society recommended that all new areas of ground disturbance associated with the project site and mitigation site be surveyed by a qualified archaeologist to locate and evaluate the significance of any archaeological sites that may be present. The Corps concurred with that recommendation due to the presence of a high number of archaeological sites along the Trempealeau River corridor in the Arcadia area and requested that the applicant conduct an archaeological survey. The Mississippi Valley Archaeological Center completed a Phase I archaeological study and no cultural materials were found at the project site. On September 21, 2005, the SHPO concurred with those findings (Attachment F).

Wisconsin Wetland Association (WWA). The WWA requested an extension to the Public Notice comment period in order to conduct an on-site meeting with Ashley representatives scheduled for July 28, 2005. The Corps subsequently granted WWA an extension to August 15, 2005. By letter dated August 15, 2005 (Attachment G), the WWA submitted comments regarding the project. They stated that the Corps should conduct an independent practicable alternatives analysis in order to review Ashley's permit application. They state that the current alternatives analysis is incomplete and difficult to interpret by anyone who is not an expert in

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furniture manufacturing. They state that the two wetland filling projects need to be evaluated separately because they have independent costs and functions, and involve different hydrologic systems. They also state that the Corps should evaluate the cumulative impacts of Ashley's past wetland fill, the current request to fill, and the future of the existing surrounding wetlands. The WWA also states that the 3.26-acre wetland area proposed to be filled has been inaccurately described by the applicant as a discrete low quality wetland. The WWA states that this wetland is part of an extensive floodplain wetland that has been proposed for filling.

The WWA further states that the Corps should stipulate that Ashley justify their statements that this will be the last plant expansion in Arcadia by protecting the remaining wetlands in perpetuity. They recommend that the Corps include a condition that Ashley secure permanent protection for the remaining wetlands through a conservation easement.

By letter dated September 6, 2005 (Attachment H), the Midwest Environmental Advocates, on behalf of the WWA, submitted further comments on the Ashley permit application. They state that Ashley has failed to rebut the presumption that there are practicable alternatives to the proposal and state that the WDNR should conduct an independent practicable alternatives analysis. It is their opinion that Ashley's alternatives analysis is flawed. They also express concerns regarding the cumulative effects of the proposed fill and state that Ashley's tree removal and moving of the wetland have impacted the project area. They further state that if the WDNR approves this project, it should be on the condition that no further wetlands would be filled on site.

Ashley Furniture Industries. By letters dated August 11 and 19, and September 1 and 28, 2005 (Attachments I, J, K and L), Ashley responded to the comment letters by the EPA, FWS, and the WWA.

ALTERNATIVES KEY

Throughout the remainder of Part II of this document, the proposed project and its alternatives will be identified according to the following key:

P = Project as described in the public notice with a modification of the project plans to include two storm-water retention ponds and a reduction in wetland fill impacts associated with the warehouse site and railroad siding track/inter-modal container storage area. Total wetland impacts are now 14.328 acres.

D = Denial of the permit.

ALTERNATIVES NOT EVALUATED

Ashley Furniture evaluated numerous alternatives for the expansion of the Arcadia facility. These alternatives are described in two documents. The first document is titled Ashley Furniture Industries, Inc. Practicable Alternatives Analysis dated May 2005 (Attachment M). The second document is titled Ashley Expansion Alternative Analysis (Attachment N). Both documents in combination thoroughly discuss the various alternatives that Ashley has evaluated to increase the efficiency of their Arcadia facility. Several alternatives discussed in the May 2005 document were dismissed from further consideration. One of these alternatives includes

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the construction of a second story to the existing manufacturing facility. Ashley notes the existing buildings were not designed to support a second floor. The costs to modify the existing structures to support a second story were not practicable. The other alternative considered was to move some operations to an alternative location outside of Arcadia. This facility could be used for office, warehouse, production space, or tractor/trailer storage. Ashley states that they have constructed their new office building at the Ashley facility and would prefer to maintain its headquarters in Arcadia. They further state that by having a centralized, regional manufacturing facility, Ashley maximizes the use of its equipment, avoiding the duplication caused by multiple manufacturing or warehouse facilities. Therefore, Ashley did not evaluate these two alternatives further.

However, Ashley did evaluate the following 11 alternatives in detail as described in Attachment M titled Ashley Expansion Alternative Analysis.

Q1-M – Construct a separate manufacturing building southeast of Plant 4 and converting the existing Plant 4 for warehousing.

Five Year Cost = \$[REDACTED] million

Wetland Impact 14.48 acres

Q1-S – Construct a separate shipping building southeast of Plant 4; Use the space in Plant 4, once used for shipping, for manufacturing.

Five Year Cost = \$[REDACTED] million

Wetland Impact = 14.58 acres

Q1-SE – Construct an attached expansion to the southeast of Plant 4.

Five Year Cost = \$[REDACTED] million

Wetland Impact = 14.58 acres

Q2 – Construct attached warehouse to the northwest of Plant 2.

Five Year Cost = \$[REDACTED] million

Wetland Impact = 14.04 acres

Q3 – Construct an attached warehouse expansion to the southwest of Plant 2.

Five Year Cost = \$[REDACTED] million

Wetland Impact = 25.6 acres

Q4 – Construct an attached expansion to the northeast of Plant 1.

Five Year Cost = \$[REDACTED] million

Wetland Impact = 3.23 acres

Q5 – Construct an attached warehouse expansion to the southwest of Plant 4 (preferred alternative).

Five Year Cost = \$[REDACTED] million

Wetland Impact = 14,328 acres (revised from 14.58 acres)

#7 – Move some operations to an alternative location such as Eau Claire/La Crosse.

Five Year Cost = \$[REDACTED] million

Wetland Impact = 0

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#7A - Construct a separate shipping building southeast of Plant 4 and use the space in Plant 4, once used for shipping, for manufacturing.

Five Year Cost = \$ [REDACTED] million

Wetland Impact = 0

#7B - Construct an attached warehouse expansion to the southwest of Plant 4.

Five Year Cost = \$ [REDACTED] million

Wetland Impact = 9.11 acres

#9 - Construct a separate warehouse on the north side of the Trempealeau River.

Five Year Cost = \$ [REDACTED] million

Wetland Impact = 24.45 acres

Wetland impacts associated with these 11 alternatives range from 0 to 25.6 acres, with the preferred alternative having an impact of 14.328 acres. Alternative Q3 would impact 25.6 acres of wetland and #9 would impact 24.45 acres of wetland along the Trempealeau River corridor. Due to the large wetland impact, these alternatives and the quality of wetland, these alternatives will not be evaluated further in this document.

Three alternatives, Q4, #7, and #7A, have wetland impacts ranging from 0 to 3.23 acres. However, Ashley's five-year cost of these alternatives is \$ [REDACTED] million, \$ [REDACTED] million and \$ [REDACTED] million respectively, compared to a five-year cost of \$ [REDACTED] million for the preferred alternative. Therefore, alternatives Q4, #7, and 7A will not be evaluated further because they do not meet the applicant's project purpose to improve the efficiency of the furniture manufacturing facility.

The remaining five alternatives, Q1-M, Q1-S, Q1-SE, Q2, and Q5 (revised) have wetland impacts ranging from 14.04 acres to 14.58 acres. The five-year costs associated with these alternatives are \$ [REDACTED] million, \$ [REDACTED] million, \$ [REDACTED] million, \$ [REDACTED] million and \$ [REDACTED] million respectively. The wetland impacts with these five alternatives are comparable, however, the five-year cost of the preferred alternative (\$ [REDACTED] million) is significantly lower than the other four alternatives. Therefore, alternatives Q1-M, Q1-S, Q1-SE, and Q2 will not be evaluated further because they do not meet the applicant's project purpose to improve the efficiency of the furniture manufacturing facility. The remaining alternative, Q5 (revised), with a wetland impact of 14.328 acres, will be further evaluated in this document.

MITIGATION AND THE SECTION 404(B)(1) RESTRICTIONS ON DISCHARGE

Guidelines issued by the U.S. Environmental Protection Agency (EPA) pursuant to Section 404(b)(1) of the Clean Water Act restrict discharges of dredged or fill material under certain circumstances (see 40 CFR 230.10). These circumstances include specified types of environmental harm that would be caused by the discharge under review.

The guidelines also restrict discharges when there are feasible, less environmentally-damaging alternatives available. In general, this portion of the guidelines corresponds to the definition of mitigation found in the guidelines issued by the Council on Environmental Quality to implement the National Environmental Policy Act (see 40 CFR 1508.20). The policies and

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procedures for implementing the 404(b)(1) guidelines were set forth in a Mitigation Memorandum of Agreement (MOA) issued by the EPA and the Corps on February 7, 1990. According to the MOA, "The Corps will strive to avoid adverse impacts and offset unavoidable adverse impacts to existing aquatic resources, and for wetlands, will strive to achieve a goal of no overall net loss of values and functions." To carry out this policy, the Corps will, in general, evaluate Section 404 applications by gathering and reviewing all information on a project, including potential mitigation, at the same time. Then the Corps makes the following sequence of determinations:

1) Avoidance - The Corps first makes a determination that potential impacts have been avoided to the maximum extent practicable. To determine the availability of alternatives that would avoid impacts, one of the following two criteria must be applied:

a) If the project is in a special aquatic site (such as a wetland), and if the project does not need to be in or near the special aquatic site to fulfill its basic purpose (i.e., the project is not "water dependent"), then the Corps is required to assume that there are practicable alternatives that do not involve special aquatic sites. To overcome this presumption, the applicant must clearly demonstrate to the Corps that practicable alternatives are not available. If the presumption is not overcome, the Corps must deny the permit application.

b) If the project is not in a special aquatic site and/or is water dependent, the Corps is not required to assume that there are practicable upland alternatives. However, if the Corps identifies such alternatives, the applicant must clearly demonstrate that they are not feasible. If such a demonstration cannot be made, the Corps must deny the permit application.

2) Minimization - The Corps will next mitigate unavoidable impacts, to the extent appropriate and practicable, by requiring steps to minimize those impacts.

3) Compensation - Finally, the Corps will mitigate unavoidable impacts, to the extent appropriate and practicable, by requiring steps to compensate for aquatic resource values.

In determining "appropriate and practicable" measures to offset unavoidable impacts, such measures should be appropriate to the scope and degree of those impacts and practicable in terms of cost, existing technology, and logistics in light of overall project purposes. The Corps will give full consideration to the views of the resource agencies when making this determination.

(NOTE: It may be appropriate to deviate from the above sequence when the discharge is necessary to avoid environmental harm or when the proposed discharge can reasonably be expected to result in environmental gain or insignificant environmental losses.)

The following is a summary of the mitigation sequence as it pertains to the proposal (Alternative P) and, if applicable, its alternatives (A1, A2, etc.). If denial of the permit (Alternative D) is not specifically addressed, the reader may assume that no discharge subject to Section 404(b)(1) sequencing would result from such action.

Avoidance. The purpose of this project is to improve the efficiency of an existing furniture manufacturing facility. This is not a water-dependent activity, because manufacturing facilities do not have to be located in or adjacent to water/wetland areas. Furthermore, the

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project site is a wetland, which is a special aquatic site. Therefore, the Corps must assume that there are practicable alternatives available that would avoid wetland impacts. The Ashley manufacturing plant is bounded on the north by the Trempealeau River and associated wetlands/floodway. To the west of the plant are wetlands and the previous Ashley wetland mitigation site. To the south and east of the plant are residential neighborhoods of the City of Arcadia. Of the 11 alternatives that Ashley evaluated for expansion, only alternatives Q4 and #7 had no wetland impacts. As discussed previously, those alternatives had a 5-year cost of \$[REDACTED] million and \$[REDACTED] million respectively, compared to a 5-year cost of \$[REDACTED] million with the preferred Q5 alternative. Therefore, the avoidance of wetlands does not appear to be practicable for the expansion of the Ashley facility.

Minimization. In 1995, Ashley had discussions with the Corps and WDNR regarding further expansion at the Arcadia facility. Ashley proposed to expand their facility southwest of Plant 2 into wetlands immediately adjacent to the Trempealeau River (this alternative is identified as Q3 in the current alternatives analysis and would impact 25.6 acres of wetland). The WDNR objected to the proposed expansion and insisted that Ashley consider alternatives to the proposed expansion. The area now being considered for expansion (Q5) is located southwest of Plant 4, an area that was suggested by George Meyer, who then served as Secretary of the WDNR. Ashley states that this area has various limitations and is far from ideal for meeting Ashley's needs. It has limited available space for expansion and limited parking for employee vehicles. However, Ashley does state that the site does address many of their other facility needs and are pursuing this site as the preferred alternative. The original site plan in the Public Notice showed 11.32 acres of wetland impact for the warehouse and 3.26 acres of wetland impact for the railroad siding area/inter-modal storage area. The warehouse site plan has been modified to include a 2.1-acre storm-water retention pond which results in 9.078 acres of wetland fill for the warehouse. The construction of the storm-water pond in the wetland would still be considered an adverse wetland impact, however, it would reduce the amount of wetland fill at the warehouse location. Ashley has reduced the wetland impact from 3.26 acres to 2.75 acres at the railroad siding/inter-modal storage area, a reduction in wetland fill of 0.51 acres. However, the addition of a 0.4-acre storm water pond at this site would result in a total wetland impact of 3.15 acres for the rail siding area. Therefore, the total wetland impact associated with this proposal is now 14.328 acres.

Compensation. Ashley proposes to mitigate for the 14.328 acres of wetland impact associated with their furniture plant expansion at an off-site location in the South 1/2 of section 10, T20N, R8W, Trempealeau County, Wisconsin. Although this mitigation site is not in the Trempealeau River watershed, it is within the same Geographic Management Unit in accordance with the Guidelines for Wetland Compensatory Mitigation in Wisconsin – February 2002. The mitigation site is 34.5 acres in size and is located in the French Creek watershed about 9.5 miles southeast of the Ashley facility. The compensation design includes restoration of agricultural cropland within the floodplain of upper French Creek by restoring hydrology and re-establishing native plant communities. Hydrologic restoration would include filling the numerous ditches and minor grading to expose buried organic soils, increase soil saturation duration, and protect water quality. Native plant community restoration would include persistent treatment of reed canary grass, establishment of wet/sedge meadow communities by seeding and plant plug installation, and establishment of southern lowland forest by installing native trees. A 100-foot wide upland buffer strip would be included along the eastern portion of the wetland restoration

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site. Restoration within the buffer area would include ceasing current pasture use and restricting land-use as detailed in the conservation easement.

The mitigation plan prepared by Natural Resources Consulting, Inc. (NRC), states that 19.4 acres of wet/sedge meadow, 8.0 acres of southern lowland forest, and 0.6 acres of open water/shallow marsh would be restored. Total wetland restoration would be 28 acres. An additional 1.5 acres of wet/sedge meadow would be enhanced, 1.75 acres of upland mosaic prairie would be restored, and 3.25 acres of upland buffer would be preserved. The mitigation work would be completed concurrent with the permitted project.

For a summary of all elements of Sec. 404(b)(1) compliance (including the alternatives criteria discussed above), see the matrix that follows the list of Technical Evaluation Factors.

GENERAL PUBLIC INTEREST FACTORS

IMPACT KEY:

B = Beneficial effect.

A = Adverse effect.

0 = No effect.

T = Temporary

NOTE: The absence of narrative under any heading with a "B" or "A" in the parenthesis indicates that, although there would be an impact, it would be a very minor one. If assessing more than one alternative, the impacts for each alternative will be shown in separate parentheses. However, if none of the alternatives would have an impact (either beneficial or adverse) on a given factor, a single (0) will be used after that factor. P will be used to describe the impacts associated with the applicant's proposal and D will be used to describe the impacts associated with the denial of the permit.

Noise Levels. P (A), D (0) Earthmoving and construction activities at the proposed construction site would result in an increase in noise levels in the project vicinity. There is an existing residential area located to the southeast of the project area that would experience increased noise levels. However, that residential area is currently subject to rail and truck traffic noises from the existing Ashley facility. Adverse noise impacts would also occur during the construction of the mitigation site. However, due to the rural location of the mitigation site, those impacts would be limited to those rural residences located immediately adjacent to the site.

Aesthetic Values. P (A), D (0) The construction of a warehouse and container storage area in wetlands would be viewed by many to be an adverse impact to the existing natural wetlands that are located adjacent to the Ashley facility.

Recreation. (0) No impacts to recreation are expected to occur as a result of this project.

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Transportation. P (B), D (0) Ashley states that the Arcadia facility currently receives [REDACTED] to [REDACTED] shipments per week of raw materials and finished goods for transfer to other facilities, and ships [REDACTED] to [REDACTED] loads of finished goods per week, by rail or over the road. In addition, Ashley has about [REDACTED] trailers on the road at any given time. The City of Arcadia has used state grants and tax money obtained from Ashley as part of the Tax Increment Finance District to make improvements to the local streets in and around the Ashley facility obtained. The Wisconsin Department of Transportation has also made improvements to STH 95 located to the south of Arcadia and to STH 93, which is located east of Arcadia. These highways are the major routes used by Ashley trucks to access the Arcadia facility.

The State of Wisconsin and Arcadia have developed the rail facilities at the Ashley facility, which is served by the Canadian National Railway. Ashley has used these improvements to develop a regional inter-modal container storage yard, which serves not only Ashley, but other area businesses as well. Ashley proposes to expand its complement of inter-modal containers and semi-truck tractor trailers by [REDACTED] units to regain efficiency in shipping furniture products, necessitating the expansion of the railroad siding area and container storage yard.

Public Health. (0) No impacts to public health are expected to occur as a result of this project.

Safety. (0) No impacts to safety are expected to occur as a result of this project.

Community Growth. P (B), D (0) Ashley Furniture is the largest employer in Trempealeau County. The growth of Ashley's facility provides a benefit to the City of Arcadia and surrounding communities.

Business/Home Relocations. (0) No businesses or homes would be relocated as a result of this project.

Existing/Potential Land Use. P (A), D (0) The project site is a remnant of a farm that has historically been used for agricultural production. Since the purchase of this farmland by Ashley, they have used the majority of the upland for the expansion of the existing manufacturing facility. The remaining acreage is mostly wetland consisting of wet meadow and shallow marsh.

Property Values. P (B), D (0) According to information provided by Ashley, the proposed infrastructure and development costs for this project would be \$ [REDACTED] million resulting in a concurrent increase in property values at the Ashley facility.

Tax Revenues. P (B), D (0) Increased tax revenue at the local, state, and federal level would be expected to occur as a result of this project.

Public Facilities and Services. (0) No public facilities or services would be impacted by this project.

Employment. P (B), D (0) Ashley has stated that [REDACTED] additional jobs would be created at the Ashley facility as a result of the warehouse expansion project. Ashley directly employs more than [REDACTED] people worldwide, with [REDACTED] employees in Wisconsin. Another [REDACTED] people are employed in Wisconsin by Ashley's transportation division.

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Business Activity. P (B), D (0). Since 1982, Ashley's sales have grown at an annual average of [REDACTED] % and in 2004 achieved gross sales of \$ [REDACTED] billion. Ashley anticipates that its sales will continue to grow at an annual rate of [REDACTED] if it can satisfy the space requirements associated with this rate of growth. Ashley states that the current Arcadia facility simply has insufficient capacity to be operated efficiently. In terms of production per employee hour, the Arcadia facility is [REDACTED] less efficient than the Ashley facility in Ecorse, Mississippi. Ashley states that with a planned expansion of the Ecorse facility, this disparity would increase. As a result, Ashley states that they are fast approaching a decision on relocating all or some of its Arcadia operations to another facility, likely outside the state of Wisconsin. The proposed expansion would add 275,000 square feet of storage space for finished furniture products and would allow the conversion of 150,000 square feet of existing storage space to furniture production. The expansion would require [REDACTED] new employees result in an increase in production of 356,000 furniture pieces. Overall, the proposed project would result in a net annual cost reduction of \$ [REDACTED] due to operational efficiencies.

Farmland/Food Supply. P (A), D (0) The site of the proposed warehouse expansion is part of a previous farm that has historically been in agricultural production. The remainder of the farmland has already been converted to building or parking parcel since acquisition. Ashley's mitigation site is currently in agricultural production. The site was most recently farmed with a hay crop of timothy and clover. Other crops on the site have included soybeans. A small cattle corral is located in the southwestern corner of the property with some of the mitigation area having a past use as pasture. The conversion of this cropland to wetland would result in a minor loss of farmland in Trempealeau County.

Flooding. P (A), D (0) The wetlands within the proposed warehouse area are not within the floodplain of the Trempealeau River and are separated from Mevies Valley Creek by a flood control dike. However, the 2.75 acres of wetland that are proposed to be filled for the rail siding area and container storage area are within the 100-year floodplain of the Trempealeau River. Further analysis of the impacts of the fill on the floodplain/flood elevations will need to be completed by the City of Arcadia as required under the state floodplain regulations.

Energy. P (A), D (0) The proposed expansion of the Ashley facility would require the use of additional electricity at the manufacturing plant as well as additional fuel for the tractor trailers that deliver raw materials to Ashley and haul furniture products to their final destination.

Mineral needs. P (A), D (0) The proposed project would require that fill material be brought to the site to raise the elevation of the site. It is unknown at this time if this fill material would be obtained from an existing borrow site or if a new borrow site would be required.

Air Quality. P (A), D (0) Increased production at the manufacturing facility would equate to a concurrent increase in air quality emissions from both the manufacturing processes and employee/tractor vehicles.

Terrestrial Habitat. P (A), D (0) The upland areas, including some of the wet meadow wetland, within the warehouse expansion area have historically been used for agricultural production. Since the purchase of this area by Ashley, the site has been mowed resulting in short grass habitat providing minimal habitat for upland species.

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Aquatic Habitat. P (A), D (0) The proposed warehouse site is approximately 18 acres in size with a 1,520 foot long watercourse that begins at the center of the site and runs to the northwest corner of the site. This watercourse is 10 to 15 feet wide with about two feet of standing water. Ashley's consultant determined that this watercourse is likely an old meander scar of the adjacent Meyers Valley Creek. This watercourse ultimately connects to the Trempealeau River about 3,670 feet west of the Ashley facility. At the south end of the watercourse, there is an open water pond approximately 0.5 acres in size. The WDNR has determined that this pond and watercourse meet the definition of state navigable waters. These areas currently provide habitat for waterfowl, neo-tropical migratory songbirds, wading birds, amphibians, and small mammals such as muskrat, mink, and raccoon. As part of the storm-water plan, the open water pond would be converted to a storm-water pond. The existing watercourse would be re-located to the area immediately adjacent to the existing dike and serve as the outlet for the storm-water pond. The conversion of these natural features to a storm-water pond and outlet would adversely impact the current functions and values of these wetlands. The storm-water pond would be subject to rapid changes in water elevation during storm events. This bounce in water elevation is not conducive to the establishment of wetland vegetation. Pollutants and sediments from parking lot run-off would also enter this pond resulting in a decrease in water quality.

Upper French Creek is designated as a Class II trout stream by the WDNR upstream from the Wayside Lane road crossing. Although the section of French Creek adjacent to the mitigation site is not designated trout water, the wetland restoration effort would have a beneficial impact on that stream by reducing sedimentation from agricultural activities. Filling of the ditches would eliminate a potential source of thermal impacts to French Creek. Future water quality improvements in the watershed could result in additional sections of French Creek becoming suitable trout habitat.

Habitat Diversity and Interspersion. P (A), D (0) Approximately 65% of the wetland area to be impacted is a mono-typic reed canary grass wet meadow that has been mowed. Other wetland types are shallow marsh and scrub/carr habitats. The warehouse project site is immediately adjacent to the 50-acre former City sewage lagoon system that was converted to a mitigation site for Ashley's previous permit. The proposed rail siding site is adjacent to a large, extensive floodplain wetland complex along the Trempealeau River. The loss of several acres of shallow marsh habitat at the warehouse site would adversely impact the habitat diversity of the Trempealeau River corridor.

Water Quality. P (A), D (0) The proposed project would result in the filling of 11,828 acres of wetland adjacent to Meyers Valley Creek and the Trempealeau River. An additional 2.5 acres of wetland would be impacted by the construction of two storm water ponds. The wetlands to be impacted by the warehouse construction are separated from Meyers Valley Creek by a flood control dike and no longer provide any water quality functions to that stream. However, the wetland area does drain northward through a small stream to a pumping station and then to the Trempealeau River floodplain. Currently, parking lot run-off appears to contribute water to this system and the wetland would provide important water quality functions by trapping sediments and the uptake of nutrients prior to the run-off water reaching the Trempealeau River. Current WDNR regulations require that new construction projects over one acre in size have a storm-water plan. Ashley has designed a 2.1-acre storm water retention pond in the existing wetland at the southwest corner of the proposed warehouse. This retention pond would receive run-off water from the warehouse roof and parking lot providing water quality benefits to the

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downstream receiving waters. The proposed rail siding area would also impact greater than one acre and a 0.4-acre storm water retention area has been designed for that site.

At the mitigation site, approximately 20 acres of grading is proposed to remove an average of 6 inches of topsoil from the site. No grading would occur within 35 feet of French Creek. The material would be used to fill the existing drainage ditches or be hauled off-site. The re-vegetation of the mitigation site with permanent herbaceous vegetation would reduce site erosion when compared to the previous row cropping land use.

Large-scale earthmoving projects (both the project site and mitigation site) have the potential for erosion of exposed soils during construction. The use of erosion control methods such as silt fence, hay bales, etc., reduce those impacts to downstream receiving waters and wetlands. The WDNR will require the submittal of an erosion control plan for their review and concurrence.

Water Supply. (0) No impacts to the water supply are expected to occur as a result of this project.

Groundwater. P (T, A), D (0) As part of the construction process, de-watering wells would be required to dry the sub soils on site resulting in a temporary lowering of the groundwater levels in the immediate vicinity of the fill area. Upon completion of the fill, the groundwater levels would return to pre-existing conditions. The water levels in the adjoining wetland mitigation site will be monitored to ensure that the de-watering wells do not impact that area.

Soils. P (A), D (0) The soils at the Ashley site are mapped as Dunnville fine sandy loam. This is a mineral soil with redoximorphic features found at 12 inches below the soil surface. These soils would be filled for the construction of the warehouse and railroad siding area. The soils at the mitigation site are mapped as Boaz silt loam, Lawson silt loam, and Wallkill silt loam. Although only the Wallkill series is listed as a hydric soil, most of the site does contain hydric soil based on field surveys by a soil scientist. An average of six inches of these soils from a 20-acre portion of the mitigation site would be excavated and used to fill the existing ditch system. The remaining soils would be hauled to an off-site upland location.

Shoreline Processes. (0) The proposed project is not located along the shoreline of any lake or stream and no impacts are expected to any shoreline processes.

Wetlands. P (A), D (0) The proposed project would result in the filling of 9.078 acres of wetland for the warehouse expansion, 2.75 acres of wetland for the railroad siding area, 2.1 acres of wetland impact for the warehouse storm-water retention area, and 0.4 acres of wetland impact for the siding/storage area storm-water retention area. Total wetland impacts are 14.328 acres.

Proposed Plant Expansion Site

Approximately 75% of this wetland area is maintained in a mowed condition and is dominated primarily by reed canary grass. Other common non-dominant species within the mowed areas include Kentucky Bluegrass, Creeping Charlie, common dandelion, Kentucky bluegrass, clovers, white-panicked aster and common fox tail sedge. This area was the driest portion of the wetland, with saturated soils occurring about 18 inches below the ground surface. Three small depressional areas with several inches of standing water contained a moderate prevalence of soft-

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stem and river bulrush with lesser amounts of water plantain, nodding beggars tick, common spike-rush, hybrid cattail and barnyard grass. A drainage-way is located in the central portion of the wetland and flows to the north where it empties into a storm water drainage system. Dominant vegetation within the banks of the waterway includes hybrid cattails, soft-stem bulrush, common bur-reed and reed canary grass. Deeper, open water portions of the waterway were dominated by common waterweed.

Shallow marsh communities are located in the northern portion and southwestern portion of the wetland. These areas are not mowed and were inundated with up to 6 inches of water. Plant diversity was generally low and dominated by hybrid cattail and reed canary grass with some scattered common bur-reed. Other common non-dominant species included white-panicked aster, nodding beggars tick, and fox sedge. A small area of shrub-carr community is located in the southern most portion of the wetland and is comprised mostly of pussy willow with red-osier dogwood and grey dogwood.

NRC Completed a Floristic Quality Assessment (FQA) of the site. They found low plant diversity due to the dominance of non-native species. While a total of 49 plant species were identified within the project area, only 10 species were common, with reed canary grass and hybrid cattail comprising 90% of the plant community. The FQA for this site was low at 18.0.

NRC completed a functional wetland assessment for the proposed warehouse expansion area utilizing the WDNR Rapid Assessment for Evaluating Wetland Functional Values (WDNR RAMS). This wetland complex contains wet meadow, shallow marsh and shrub/carr wetland types. Wetland functions for Wildlife Habitat, Groundwater, Aesthetics/Recreation/Education were ranked as Low, with functions for Floral Diversity, Flood/Storm Water Attenuation, and Water Quality Protection ranked as Medium. Function ratings for Fishery Habitat and Shoreline Protection were not applicable.

Proposed Rail Siding Expansion Area

The proposed rail siding area is located southwest of Plant 2 Phase 4 adjacent to the existing railroad tracks. This wetland is part of a very large floodplain wetland complex adjacent to the Trempealeau River. The wetland area proposed for filling is currently maintained in a mowed condition and is dominated by reed canary grass. Six non-dominant plant species included Box elder, Canada thistle, bull thistle, red-osier dogwood, Kentucky bluegrass, and stinging nettle. A total of seven plant species were identified within the wetland area, 43% of which were native, resulting in a very low FQA of 1.5.

NRC completed a functional wetland assessment utilizing the WDNR Rapid Assessment Methodology for Evaluating Wetland Functional Values (WDNR RAM). For purposes of that assessment, NRC evaluated a 75-acre portion of this wetland complex that is contained within a large oxbow channel of the Trempealeau River. This wetland complex contains a number of wetland plant communities including floodplain forest, shrub-carr, shallow marsh, and wet meadow. Dominant plant species include green ash, silver maple, willow species, dogwood species, reed canary grass, cattails, and stinging nettle. Wetland functions for Floral Diversity and Fishery Habitat were ranked at Medium, with Wildlife Habitat, Flood/Storm Water Attenuation, Water Quality Protection, Shoreline Protection, Groundwater, and Aesthetics/Recreation/Education ranked as High. The significant functional values of this

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wetland complex result from many factors; with the most important being the landscape position and size of the wetland especially as it relates to the following: 1) this wetland is part of an expansive wetland complex that comprises more than 10,000 acres of floodplain wetland along the Trempealeau River within a 17 mile radius of Arcadia, 2) the wetland complex includes various vegetation cover types resulting in high potential for diverse wildlife utilization, 3) the wetland complex is associated with the Trempealeau River and provides significant flood/storm water storage and water quality protection functions during high-water events as well as potential fish spawning habitat during these flood events, and 4) recreational use of the Trempealeau River by canoeists and anglers and the associated aesthetic value of the wetland view shed.

The rail siding expansion area is proposed to be located in the lowest quality and most degraded portion of this wetland complex. This portion of the site has been degraded as a result of past activities associated with the adjacent railroad. Numerous dredged material piles ranging in height from 2 to 4 feet are located within this area. Approximately 0.9 acres of historic fill is located within the proposed expansion area. Wildlife usage in this portion of the wetland complex is very limited due to the lack of vegetation diversity and cover types, limited open water, and the proximity to the railroad corridor. The storm water/flood storage and water quality functions of this portion of the wetland are limited due to the distance from the river and the higher elevations of this area. In addition, fishery habitat, shoreline protection and aesthetics/recreation/education within this portion of the wetland are minimal due to its distance from the river and lack of public access.

Proposed Mitigation Area

Ashley proposes to mitigate for the 13.928 acres of wetland impact associated with their furniture plant expansion at a 34.5 acre off-site location in the French Creek watershed about 9.5 miles southeast of the Ashley facility. Hydrologic restoration would include filling the numerous ditches and minor grading to expose buried organic soils resulting in an increase in soil saturation duration. Native plant community restoration would include 1) persistent treatment of reed canary grass, 2) establishment of wet/sedge meadow communities by seeding with a native sedge meadow seed mix, 3) installation of 35,500 native plant plugs (mostly hummock sedge), and 4) establishment of southern lowland forest by installing native trees including silver maple, black ash, green ash, swamp white oak, burr oak and river birch. A 100-foot wide upland buffer strip would be included along the eastern portion of the wetland restoration site. Restoration within the buffer area would include ceasing current pasture use and restricting land-use as detailed in the conservation easement.

The mitigation plan prepared by NRC, states that 19.4 acres of wet/sedge meadow, 8.0 acres of southern lowland forest, and 0.6 acres of open water/shallow marsh would be restored. Total wetland restoration would be 28 acres. An additional 1.5 acres of wet/sedge meadow would be enhanced, 1.75 acres of upland mesic prairie would be restored, and 3.25 acres of upland buffer would be preserved. The mitigation work would be completed concurrent with the permitted project.

Secondary and Cumulative Impacts. P (A), D (0) Ashley first opened a [REDACTED] square foot manufacturing facility in Arcadia in 1970. By 1993, Ashley had expanded in size by more than 28 times to approximately [REDACTED] square feet. In 1993, the Corps and WDNR issued Ashley

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permits authorizing 19.76 acres of wetland fill for plant expansion and parking. Ashley facilities are now 1.5 million square feet in size. Ashley has stated that it expects growth rates of [REDACTED] per year and the proposed expansion would accommodate Ashley's growth and efficiencies at the Arcadia plant for a 5-year period. Ashley has indicated that they have no plans for additional expansion at this time. Ashley claims it cannot reliably plan for future expansion past five years due to market changes.

According to the WDNR wetland inventory, there are 3,138 acres of mapped wetland within a 5-mile radius of Arcadia. The proposed wetland impact of 14.328 acres of wetland is about 0.46% of that wetland acreage. The WDNR stated that since the inception of wetland water quality standards in 1991, WDNR records show that less than 16 permits have been issued in the West Central Region for wetland fills over 10 acres in size and less than 62 permits on a state-wide basis. The very small number of wetland approvals indicates the difficulty in authorizing large wetland fills for any type of project.

PUBLIC INTEREST FACTORS MERITING SPECIAL CONSIDERATION.

Navigation. (0) The proposed project would not impact a federally navigable water.

Endangered Species. (0) The Bald Eagle (Threatened), the Higgins' Eye Pearly mussel (Endangered), and the Eastern Massasauga (Candidate), are known to occur in Trempealeau County. However, none were identified by the applicant or known to exist in the permit area. By letter dated July 27, 2005, the FWS concurred with that determination and no impacts to Threatened or Endangered species are expected to occur.

Historical/Archaeological. (0) The Wisconsin Historical Society (WHS) requested that an archaeological survey be completed of the project site and mitigation site. That survey was completed by the applicant's consultant and a report was submitted to the WHS for review. No archaeological sites or materials were found and no further action is warranted.

Wild and Scenic Rivers. (0) No wild or scenic rivers would be impacted by this project.

Tribal Trust Resources. (0) No tribal trust resources would be impacted by this project.

State Listed Impaired (Section 303(d)) Waters. (0) No state listed impaired waters would be impacted by this project.

Section 176(c) of the Clean Air Act General Conformity Rule Review.

The proposal has been analyzed for conformity applicability pursuant to regulations implementing Section 176(c) of the Clean Air Act. It has been determined that the activities proposed under this permit will not exceed de minimis levels of direct emissions of a criteria

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pollutant or its precursors and are exempted by 40 CFR Part 93.153. Any later indirect emissions are generally not within the Corps continuing program responsibility and generally cannot be practicably controlled by the Corps. For these reasons, a conformity determination is not required for this permit.

THE ENVIRONMENTAL PROTECTION AGENCY'S 404(B)(1) GUIDELINES.

As explained above, the discharge of dredged or fill material will be evaluated in accordance with guidelines developed by the EPA. The guidelines are found at Title 40, Code of Federal Regulations, Part 230.

Testing:

The Section 404(b)(1) guidelines require testing of the extraction site for contaminants except under certain circumstances. These include the existence of prior test results, scientific research and/or experience that indicates that contaminants are not present in the material to be discharged. Testing may also be omitted if the discharge site is adjacent to the extraction site and subject to the same sources of contaminants, and materials at the two sites are substantially similar. Testing may also be omitted if constraints are available to reduce contamination to acceptable levels, and if the potential discharger is willing and able to implement such constraints. In this case, testing is not required because the borrow material would come from local sources that are presumed to be free from contaminants.

Technical Evaluation Factors.

In making our findings on compliance with the Section 404(b)(1) guidelines, we have considered the potential impacts of the project (and alternatives, if any) on the physical and chemical characteristics of the aquatic ecosystem. These characteristics are listed in Subparts C-F of the guidelines, 40 CFR Part 230.20 - 230.54, as found on pp. 85350 - 85354 of the Federal Register, Vol. 45, No. 249. The characteristics include substrate, suspended particulates/turbidity, water, current patterns and water circulation, normal water fluctuations, salinity gradients, threatened and endangered species, fish, crustaceans, mollusks, and other aquatic organisms in the food web, other wildlife, sanctuaries and refuges, wetlands, mud flats, vegetated shallows, riffle and pool complexes, municipal and private water supplies, recreational and commercial fisheries, water-related recreation, aesthetics, parks, national and historical monuments, national seashores, wilderness areas, research sites, and similar preserves.

Section 404(b)(1) compliance summary matrix.

P = Proposal. D = No action (denial). A1, A2 = Additional alternatives, if any. Where only a P is shown, it indicates that all alternatives meet compliance criteria for that item. An unknown is a noncompliance; this will be designated with a U in the DOES NOT COMPLY column.

	MEETS CRITERIA	DOES NOT COMPLY
1. The applicant must overcome the presumption that a practicable, less environmentally damaging alternative site, outside special aquatic sites, exists. <u>If the project is water dependent, OR is not in a special aquatic site, enter only N/A (not applicable).</u>	P	
2. There must be no alternative that is practicable, is less damaging to the aquatic ecosystem, and has no other significant, adverse environmental effects.	P	
3. The discharge must not violate state water quality standards or Clean Water Act Section 307 toxic effluent standards or bans.	P	
4. The project must not jeopardize the continued existence of an endangered species.	P	
5. The project must not cause significant adverse effects on municipal water supplies, plankton, fish, shellfish, wildlife, special aquatic sites, or other aspects of human health or welfare.	P	
6. The project must not cause significant adverse effects on life stages of aquatic life and other wildlife dependent on aquatic ecosystems.	P	
7. The project must not cause significant adverse effects on ecosystem diversity, productivity, or stability.	P	
8. The project must not cause significant adverse effects on recreational, esthetic or economic values.	P	
9. All appropriate and practicable steps, to minimize potential adverse effects of the discharge on the aquatic ecosystem, must be taken.	P	

OTHER AUTHORIZATIONS.

Water-quality certification: The Wisconsin Department of Natural Resources issued the required state permit on September 29, 2005, which includes water quality certification for this project.

Coastal zone management consistency determination: N/A

State and/or local authorizations: The WDNR has issued the required state permits for the filling of navigable waters, a permit for dewatering wells, NPDS discharge permit, and a storm-water permit.

PART III - SUMMARY AND STAFF RECOMMENDATION

GENERAL EVALUATION.

The relative extent of the public and private need for the proposed work.

The proposed project would meet the applicant's need to improve the efficiency of the existing furniture manufacturing plant. The project would also meet the public's need to have employment opportunities in a largely rural county.

The practicability of using reasonable alternative locations and methods to accomplish the objective of the structure or work.

The applicant evaluated 11 alternatives for the proposed expansion and selected the preferred Q5 alternative (revised) based on economic and environmental considerations. Other alternatives with similar wetland impacts would have cost from \$ million to \$ million more than the preferred alternative over five years.

The extent and permanence of the beneficial and detrimental effects that the proposed structure or work is likely to have on the public and private uses to which the area is suited.

The proposed project is presumed to have a permanent effect on the wetland resource.

STAFF RECOMMENDATION. Based on an evaluation of all data submitted or gathered during the public interest review, it is the recommendation of the Regulatory Branch that the permit be issued to impact 14,328 acres of wetland with special conditions requiring compensatory wetland mitigation.

3 Oct 05

Date

Bruce Norton

Bruce Norton

Project Manager

3 Oct 05

Date

Robert J. Whiting

Robert J. Whiting

Chief, Regulatory Branch

PART IV - FINDINGS AND DECISION OF THE DISTRICT ENGINEER

I have considered the foregoing facts, analysis, and recommendation. The following are my views on this permit application:

FINDING OF NO SIGNIFICANT IMPACT.

Having reviewed the information provided by the applicant, the comments submitted by interested parties, and the environmental assessment contained in this document, I find that this permit action will not have a significant impact on the quality of the human environment. Therefore, an environmental impact statement will not be required.

SECTION 404(B)(1) COMPLIANCE/NON-COMPLIANCE DETERMINATION.

The discharge complies with the guidelines, with the inclusion of appropriate and practicable conditions to minimize pollution or other harmful impacts to the affected ecosystem.

PUBLIC HEARING REQUEST.

No public hearing request was received.

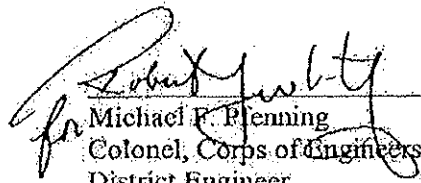
DECISION.

I have reviewed and evaluated, in light of the overall public interest, the documents and factors concerning this permit application as well as the stated views of other interested agencies and the concerned public. In doing so, I have considered the possible consequences of this project in accordance with regulations published in 33 CFR Part 320 to 330 and 40 CFR Part 230. I find that issuance of a Department of the Army permit (with special conditions):

☒ would not be contrary to the public interest.

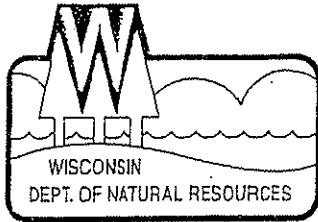
☐ would be contrary to the public interest.

October 4, 2005
Date


for Michael F. Penning
Colonel, Corps of Engineers
District Engineer

Attachment 7

Glacier Ridge Landfill Correspondence



State of Wisconsin \ DEPARTMENT OF NATURAL RESOURCES

Jim Doyle, Governor
Scott Hassett, Secretary
Ruthe E. Badger, Regional Director

South Central Region Headquarters
3911 Fish Hatchery Road
Fitchburg, Wisconsin 53711-5397
Telephone 608-275-3266
FAX 608-275-3338
TTY Access via relay - 711

NOV 5 2004

FILE REF: FID #114063950
SW/FEAS/EXP

Mr. John King, General Manager
Onyx Glacier Ridge Landfill, LLC
N7296 Highway V
Horicon, WI 53032

Subject: Determination of Site Feasibility, Onyx Glacier Ridge Landfill South Expansion, Dodge County (Lic. No. 3068)

Dear Mr. King:

We have determined that the proposed Onyx Glacier Ridge Landfill South Expansion is feasible, subject to certain conditions, and should provide for satisfactory solid waste disposal. We have also completed our environmental analysis process and have determined that an environmental impact statement is not needed for this project.

The South Expansion will serve as a significant and necessary component of the more comprehensive land use and conservation plan for the Onyx properties south of Mayville, which envisions removal of the unlined, closed demolition and Superfund landfills, and restoration and improvement of degraded wetlands and upland buffers in adjacent parcels. We look forward to continuing our cooperative efforts to realize the substantial benefits to public health and the environment by implementing, with you, the remaining elements of our July 28, 2004 Agreement.

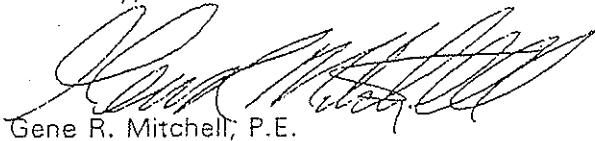
Please read carefully the attached determination which includes the conditions of the feasibility approval. Many of these conditions reflect commitments already made by Onyx in the feasibility report. We shared a draft of the attached approval with Onyx on November 3, 2004 to ensure clarity in the wording of the conditions, and received comments by telephone from Mr. Don Smith of Onyx on November 5, 2004.

You may now submit your Plan of Operation in accordance with chs. NR 500 through 538, Wis. Adm. Code, the feasibility report, and the conditions of the feasibility listed in the attached determination. This determination of feasibility does not guarantee that we will approve your Plan of Operation or license the proposed facility.

We remind you that this determination does not exempt your proposal from other state and local permits or approvals required before landfill construction and operation. In particular, you will need to secure a construction and operation permit from our air management program.

If you have any questions regarding this approval, please contact Brad Wolbert, hydrogeologist at (608) 275-7769 or Ann Bekta, engineer at (608) 743-4845.

Sincerely,



Gene R. Mitchell, P.E.
Waste Team Supervisor
South Central Region

enc.

cc: Brad Wolbert – Fitchburg
Ann Bekta – Janesville
Barb Palecek – Horicon
Dan Hunt – Horicon
Jack Connelly/Dennis Mack – WA/3
Dan Graff – LC/5
Don Smith – Onyx, N104 W13275 Donges Bay Rd., Germantown, WI 53022
Waste Facility Siting Board – 5005 University Ave., Suite 201, Madison, WI 53705
✓ Mark Torresani – RMT
Sherren Clark – BT², 2830 Dairy Drive, Madison, WI 53718
City of Mayville Clerk, 15 S. School St., Mayville, WI 53050
Town of Williamstown Clerk, N9260 Hwy V, Mayville, WI 53050
Town of Hubbard Clerk, N5959 E. Neda Rd., Iron Ridge, WI 53035
Dodge County Clerk, 127 E. Oak St., Juneau, WI 53039
Robert E. Storck – Storck, Schnabl & Madden, P.O. Box 268, Mayville, WI 53050
John St. Peter – Edgerton, St. Peter, Petak, Massey & Bullon, P.O. Box 1276, Fond du Lac, WI 54936
Tim Speerschneider – DeWitt Ross & Stevens, 2 E. Mifflin St., Ste 600, Madison, WI 53703
Peter Anderson – Recycleworlds Consulting Corp, 4513 Vernon Blvd, Ste 15, Madison, WI 53705
Sheryl Smith – Envir. Mktg & Mgt, 2525 Tiller Lane, Columbus, OH 43231

- b. A letter with attachments from RMT, Inc., dated and received by the Department on March 16, 2004, providing supplemental information for the South Expansion Feasibility Report.
 - c. "South Expansion Feasibility Report, Addendum 1, Onyx Glacier Ridge Landfill," prepared by RMT, Inc., dated June 2, 2004 and received by the Department June 2, 2004.
 - d. "South Expansion Feasibility Report, Addendum 2, Onyx Glacier Ridge Landfill," prepared by RMT, Inc., dated July 14, 2004 and received by the Department July 14, 2004.
 - e. A July 28, 2004 agreement between the Department and Onyx Glacier Ridge Landfill, LLC regarding a holistic project approach for the Onyx Glacier Ridge lands that would include incorporating the contents of the existing Land & Gas Reclamation Landfill (LGRL) and the existing closed Hechimovich Demolition landfill into proposed expansions, expanding the existing Glacier Ridge Landfill to the south into an area that contains approximately thirteen acres of wetlands, subsequently expanding the Glacier Ridge Landfill into the area previously occupied by the LGRL and restoring and enhancing approximately 245 acres of uplands and wetlands.
 - f. "South Expansion Feasibility Report, Addendum 3, Onyx Glacier Ridge Landfill," prepared by RMT, Inc., dated September 17, 2004 and received by the Department September 17, 2004.
 - g. "Compensation Site Plan for Onyx Glacier Ridge Wetland Preserve," prepared by Graef, Anhalt, Schloemer & Associates, Inc. and Thompson and Associates, dated May, 2003.
 - h. An October 29, 2004 letter from James Wedekind of RMT to the department containing updated information on private well logs submitted in connection with the feasibility report.
8. The Department also considered the following information in its review of the feasibility of the proposed landfill expansion:
- a. A December 5, 2003 memo from Jayne Somers, South Central Region Air Management Specialist, concerning potential air quality impacts from the proposed landfill expansion.
 - b. A December 12, 2003 memo from Laura Stremick-Thompson, Upper Rock River Basin Fisheries and Habitat Specialist, concerning potential aquatic resources impacts from the proposed landfill expansion.
 - c. A November 18, 2003 memo from Curt Nickels, Southeast Region Wastewater Engineer, concerning the ability of the Sheboygan and Port



